

Entry for *Encyclopedia of Standardized Testing* (Reynolds, Kamphaus, & DiStefano: Oxford University Press)

[Learning Behaviors Scale (LBS)]

The Learning Behaviors Scale (LBS; McDermott, Green, Francis, & Stott, 1999) is a 29-item teacher-report behavior-rating scale designed to be a cost- and time-effective measure of behaviors that influence effective and efficient learning. By using teacher ratings, the LBS provides for unobtrusive observation of student learning behaviors. Research presented by McDermott (1999) in support for LBS development has indicated various learning related behaviors such as attention, active participation in the instructional process, reflective rather than impulsive responding, accepting correction and feedback, and appreciation of novelty as facilitators of success in the educational process (Carter & Swanson, 1995; Finn & Cox, 1992; Jussim, 1989; Schuck, Oehler-Stinnett, & Stinnett, 1995). Learning behaviors may be taught and may have a direct impact on student learning (Barnett, Bauer, Ehrhardt, Lentz, & Stollar, 1996; Engelmann, Granzin, & Severson, 1979; Stott, 1978, 1981; Stott & Albin, 1975; Weinberg, 1979). Assessment of these learning behaviors could provide additional insights into student learning difficulties and aid in remediation of learning problems.

The LBS contains 29 items but only 25 are used to produce the Total score and the four subscales based on factor analytic study of the standardization sample (McDermott, 1999). Four items did not produce acceptable factor loadings so are not included in scoring. The factor names were based on behavioral content of items and include Competence Motivation (CM), Attitude Toward Learning (AL), Attention/Persistence (AP), and Strategy/Flexibility (SF). Five items (Items 6, 11, 15, 18, and 26) cross-loaded (were associated with two factors) and were included on both LBS scales on which they were associated. CM and AL share two items; and CM and AP, AL and AP, and AP and SF pairs each share one item. The dimensions measured by the LBS are similar to several components DiPerna and Elliott included as “academic enablers” in the development of the Academic Competence Evaluation Scales (2000, p. 6).

The LBS rating form is completed by the student’s classroom teacher who is instructed to consider the student’s typical classroom behaviors during the past two months. The LBS contains positively and negatively worded items (behaviors) to reduce response sets and are rated on a 3-point scale (does not apply, sometimes applies, most often applies; McDermott, 1999). Completion of the LBS generally takes about 10 minutes or less and once completed, a psychologist or other assessment specialist with appropriate training applies the scoring template to sum the factors and total scale raw scores. LBS factor and total raw scores are transformed to *T* scores ($M = 50$, $SD = 10$) and percentiles. In contrast to measures of psychopathology, scores on the LBS are negatively skewed.

Standardization

The LBS was standardized on a random and demographically representative United States national sample ($N = 1500$) of 5-17 year olds with the sample stratified across key demographic variables of sex, race/ethnicity, social class, family structure, community size, geographic region, and disability (McDermott et al., 1999). The LBS was also co-normed with both the Differential Ability Scales (Elliott, 1990) for 1,366 students and with the Adjustment Scales for Children and Adolescents (ASCA; McDermott, Marston, & Stott, 1993) for 1,252 students. Such co-norming allows for multivariate examination of child difficulties across domains of cognitive abilities, academic achievement, learning behaviors, and child psychopathology and facilitates differential diagnosis.

Psychometric Investigations

Psychometric research on the LBS has produced supportive results. McDermott (1999) reported average internal consistency estimates ranged from .75 to .83 across various demographic subgroups and ranged from .75 to .85 for the four subscales ($M_r = .82$). Canivez, Willenborg, and Kearney (2006) replicated these internal consistency estimates with alpha coefficients ranging from .69 to .93 ($Mdn_r = .88$) across five demographic subgroups. For the total sample, internal consistency estimates ranged from .77 to .93 ($Mdn_r = .88$). Worrell, Vandiver, and Watkins (2001) found LBS total scale internal consistency high across all subgroups and the total sample (.88 – .91). Worrell and Schaefer (2004) obtained similar alpha coefficients in two cohorts of gifted students. Alphas for Cohort 1 ranged from .67 to .86 and ranged from .61 to .86 for Cohort 2. McDermott (1999) reported high two-week short-term test-retest stability coefficients for 77 students ranging from .91 to .93 ($M_r = .92$). Short-term (30 school days) stability of LBS scores with a sample of 209 K to 8th grade students was also examined by Canivez and Gillespie (2005) who found retest stability coefficients ranging from .73 to .82 and mean differences across the retest interval to be of small effect sizes (d ranging from .03 to .14 for raw scores). Interrater agreement with a sample of 72 students was also good with intraclass correlations ranging from .68 to .88 ($M_r = .82$) for the subscales and equaled .91 for the LBS Total (Buchanan, McDermott, & Schaefer, 1998).

Validity studies summarized by McDermott (1999) provided support for the convergent and divergent validity of the LBS in comparisons with the Adjustment Scales for Children and Adolescents (ASCA; McDermott, Marston, & Stott, 1993). Statistically significant negative correlations typified the relations between subscales and composite scores and canonical redundancy analysis indicated a 30% overlap between learning behaviors (LBS) and psychopathology (ASCA). Positive learning behaviors were associated with an absence of hyperactivity and low levels of other psychopathologies; low levels of competence motivation and persistence and inflexible learning linked with avoidant and diffident characteristics; low motivation and poor attitudes toward learning were associated with oppositional behaviors and avoidance; and motivational problems and poor strategy were associated with higher levels of diffident and oppositional behaviors (McDermott, 1999).

In examining the factor structure of the LBS, McDermott (1999) found the factor structure and dimensions were invariant across sex, race/ethnicity, and age. The four-factor structure of the LBS was replicated with independent samples (Canivez, Willenborg, & Kearney, 2006; Worrell & Schaefer, 2004). Worrell, Vandiver, and Watkins (2001) provided partial support for the four factors and suggested the need for further replication with additional independent samples.

Schaefer and McDermott (1999) investigated the incremental validity of the LBS. They found that LBS scores were able to account for significant variability in teacher-assigned grades beyond that of intelligence and demographic variables. They noted students who were active participants in learning, attempted tasks, paid attention, had positive attitudes regarding learning, and applied strategies had better achievement. Worrell and Schaefer (2004) also examined the incremental validity of the LBS in their two independent samples of academically talented middle and high school students who participated in a six-week summer program at a major research university. They found that the LBS accounted for more than 10% additional variance in academic achievement after accounting for GPA, standardized achievement tests, and SES.

References

- Barnett, D. W., Bauer, A. M., Ehrhardt, K. E., Lentz, F. E., & Stollar, S. A. (1996). Keystone targets for changes: Planning for widespread positive consequences. *School Psychology Quarterly, 11*, 95-117.
- Buchanan, H. H., McDermott, P. A., & Schaefer, B. A. (1998). Agreement among classroom observers of children's stylistic learning behavior. *Psychology in the Schools, 35*, 355-361.
- Canivez, G. L., & Gillespie, K. (2006, March). *Reliability and Construct Validity of Learning Behaviors Scale Scores*. Paper presented at the 2006 Annual Convention of the National Association of School Psychologists, Anaheim, CA.
- Canivez, G. L., Willenborg, E., & Kearney, A. (2006). Replication of the Learning Behaviors Scale factor structure with an independent sample. *Journal of Psychoeducational Assessment, 24*, 97-111.
- Carter, J. D., & Swanson, H. L. (1995). The relationship between intelligence and vigilance in children at risk. *Journal of Abnormal Child Psychology, 23*, 201-220.
- DiPerna, J. C., & Elliott, S. N. (2000). *Academic Competence Evaluation Scales: Manual K-12*. San Antonio, TX: The Psychological Corporation.
- Elliott, C. D. (1990). *Differential Ability Scales: Introductory and technical handbook*. San Antonio: Psychological Corporation.
- Engelman, B. A., Granzin, A., & Severson, H. (1979). Diagnosing instruction. *Journal of Special Education, 13*, 355-363
- Finn, J. D., & Cox, D. (1992). Participation and withdrawal among fourth-grade pupils. *American Educational Research Journal, 29*, 141-162.
- Jussim, L. (1989). Teacher expectations: Self-fulfilling prophecies, perceptual biases, and accuracy. *Journal of Personality and Social Psychology, 57*, 459-480.
- McDermott, P. A. (1999). National scales of differential learning behaviors among American children and adolescents. *School Psychology Review, 28*, 280-291.
- McDermott, P. A., Green, L. F., Francis, J. M., & Stott, D. H. (1999). *Learning Behaviors Scale*. Philadelphia: Edumetric and Clinical Science.
- McDermott, P. A., Marston, N. C., & Stott, D. H., (1993). *Adjustment Scales for Children and Adolescents*. Philadelphia: Edumetric and Clinical Science.
- Schaefer, B. A., & McDermott, P. A. (1999). Learning behavior and intelligence as explanations for children's scholastic achievement. *Journal of School Psychology, 37*, 299-313.
- Schuck, L. A., Oehler-Stinnett, J., & Stinnett, T. A. (1995). Predictive validity of the Teacher Rating of Academic Achievement Motivation (TRAAM) with Hispanic students. *Journal of Psychoeducational Assessment, 13*, 143-156.
- Stott, D. H. (1978). *The hard-to-teach child: A diagnostic-remedial approach*. Baltimore: University Park Press.
- Stott, D. H. (1981). *The Flying Start Learning-to-Learn Kits*. Chicago: Science Research Associates.
- Stott, D. H., & Albin, J. B. (1975). Confirmation of a general factor of effectiveness motivation by individual tests. *British Journal of Educational Psychology, 45*, 153-161.
- Weinberg, R. A. (1979). Early childhood education and intervention: Establishing an American tradition. *American Psychologist, 34*, 912-916.
- Worrell, F. C., & Schaefer, B. (2004). Reliability and validity of Learning Behaviors Scale (LBS) scores with academically talented students: A comparative perspective. *Gifted Child Quarterly, 48*, 287-308.

Worrell, F. C., Vandiver, B. J., & Watkins, M. W. (2001). Construct validity of the Learning Behaviors Scale with an independent sample of students. *Psychology in the Schools, 38*, 207-215.