Encyclopedia of SCHOOL PSYCHOLOGY

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Interventions that are matched to the results of functional assessments have been shown across diverse groups and settings to be effective in reducing problem behavior and increasing adaptive behavior. Table 1 gives examples of behavioral terms and concepts.

—David P. Wacker, Joel Ringdahl, Danielle Dolezal, and Eric Boelter

See also Applied Behavior Analysis; Behavior Intervention; Behavioral Assessment; Behavioral Momentum; Consultation: Behavioral; Functional Behavior Assessment; Least Restrictive Environment (LRE); Positive Behavior Support

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BEHAVIORAL MOMENTUM

Behavioral momentum is a technique used to increase a child's compliance with requests. To apply this technique, the child is first asked to complete multiple tasks that he or she would naturally agree to do. Then, the child is asked to perform a disagreeable task or a task that the child is less likely to complete. Once momentum is established with the agreeable requests, the child is more likely to comply with subsequent requests. For example, John refuses to comply when his teacher asks him to clean his desk. His teacher decides to use behavioral momentum to increase John's compliance. The teacher first determines three simple tasks that are agreeable to John. These tasks include handing out papers, feeding the class's goldfish, and erasing the board. One by one, the teacher asks John to complete each of the agreeable tasks and praises him after their completion. Then, the teacher immediately asks John to clean his desk. Because the momentum of completing tasks has been established, it is more likely that John will comply and perform the disagreeable request.

—Kristin Witteborg

See also Behavior; Behavior Intervention; Self-Management

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BIAS (TESTING)

Bias in testing is a concern of psychologists, sociologists, and the general public; but the word *bias* has numerous meanings. Much of the controversy regarding bias in testing is reflected in what might be considered racial or ethnic bias. For the general public and sometimes with other groups, simple group differences in test performance are often interpreted as evidence of bias in the test (e.g., white versus African American intelligence quotient [IQ] scores). This assertion makes an assumption that there can be no group differences in test performance, lest the test be biased against the lower-performing group. This position may be the result of confusing two issues that should be kept separate: test bias and etiology of group differences (Reynolds & colleagues, 1999). Most often, bias in testing is focused on intelligence tests or other aptitude measures, but any psychological test (achievement, personality, psychopathology, perceptual-motor, etc.) can (and should) be the focus of bias investigation.

Bias in psychological testing has been a factor in several notable court cases. According to Reschly and Bersoff (1999), the first two class action law suits that

directly challenged the use of IQ tests were *Diana v. State Board of Education* and *Guadalupe v. Tempe Elementary School District No. 3.* Both cases were concerned with the overrepresentation of Hispanic children (and also Native American children in *Guadalupe)* in public education programs for the mentally retarded, and such overrepresentation was a violation of the principle of equal protection. It was also argued that identification and placement of children were made using verbally loaded tests that were unfair for limited English proficient (LEP) children. These two cases were resolved by consent decrees that specified, among other things, that children with LEP would be assessed using nonverbal measures or with measures that were in the child's primary language (Reschly & Bersoff, 1999).

Larry P. v. Riles was a class action lawsuit supported by the Bay Area Association of Black Psychologists on behalf of African American children who were overrepresented in public education programs for the mentally retarded (Reschly & Bersoff, 1999). Judge Peckham ruled that IQ tests used to classify children as mentally retarded and subsequent placement in special education programs were biased against African American children. In his opinion, a test that showed simple mean differences between groups was in and of itself evidence of bias. The ruling banned the use of IQ tests with African American students for consideration of a mental retardation classification and placement into special education classes (Reschly & Bersoff, 1999). This ruling was upheld in the Ninth Circuit Court of Appeals in 1984. In 1986, Judge Peckham approved a settlement that prohibited administration of IQ tests to African American students for any special education purpose. Finally, in *Crawford et al. v. Honig,* a class action case where African American parents who *wanted* their children to receive IQ testing for possible diagnosis of a specific learning disability (SLD), Judge Peckham rescinded the 1986 ruling of *Larry P.* and returned to the original 1979 ruling prohibiting the use of IQ tests with African American children for classification and placement for mental retardation (Reschly & Bersoff, 1999).

Another class action lawsuit pertaining to African American students was *Parents in Action on Special Education (PASE) v. Joseph P. Hannon,* which, like the *Larry P.* case, argued that IQ tests were biased against African American children and resulted in misclassification of such children as mentally retarded. Judge Grady's ruling in federal court was exactly the opposite of Judge Peckham's ruling in the *Larry P.* case. Judge Grady ruled that IQ tests were *not* culturally biased against African American children.

Bias in psychological testing is concerned with the extent to which there is systematic error in test scores as a function of a particular group membership (race, ethnicity, sex, geography, socioeconomic status, etc.). Such a definition allows for empirical investigation of bias in testing. Bias in psychological testing has been examined using several different methods. The trinitarian model of validity (content validity, criterion-related validity, and construct validity) has been used to provide a framework to investigate bias in tests.

Research investigating content validity bias is concerned with the test items and the extent to which individual test items are biased against a particular group. If an item is biased against a particular group, then it should be found to be more difficult for that group. Differential item functioning (DIE) is a statistical method used to identify items that work differently depending on the group. A logical analysis of the item content is made after identifying the different functioning items. Item response theory (IRT) methods are also used, and these methods produce item characteristic curves (ICCs). The ICCs and various statistical tests can determine if there are group differences at the item level. When ICCs differ significantly, the item may be eliminated or modified in the test construction process in an attempt to eliminate item bias.

Research investigating criterion-related validity bias is concerned with differential predictive validity of a test that might indicate bias against a particular group. Many tests (particularly IQ, ability, and aptitude measures) are constructed to make predictions of performance on other relevant measures or future outcomes. Predictive validity for ability tests may be considered the most important type of validity with respect to bias. In this case, a test is examined to determine if it predicts an outcome equally well for various groups. A test that predicts the outcome less well for certain groups might be considered less valid for that group. One way to assess predictive validity is to compare correlation coefficients between various groups that indicate whether the test had greater predictive validity for groups with the higher coefficient. This approach, however, pertains only to the *slope* of the line of predicted scores, which is the most problematic type of "bias."

Research investigating construct validity bias is typically concerned with the differential factor structure of a test that might indicate bias against a particular group. Many tests are constructed to measure more than one construct, trait, or factor; and items are assigned to factors based on their relationships (correlations) with other similar items and their lack of relationships (correlations) with dissimilar items. Other tests contain multiple subtests that are grouped together based on their relationships (correlations) with each other and lack of relationships (correlations) with other different subtests. In this case, groups of subtests together measure a common or similar dimension and represent a composite or global factor or construct. If a test measures a different number of factors for the various groups, it would have a different factor structure depending on the group; and the interpretation of the test scores would not be the same for the different groups. Another problem is if subtests (or items) do not "load" (associate) with the same dimensions or factors. Subtests or items that do not "load" on the same factors might be measuring different characteristics in the different groups.

It is expected that the components (factors) of a test should be similar with respect to different populations (or subgroups within a population), a result that is frequently obtained in the empirical literature.

—Gary L. Canivez

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BIOFEEDBACK

Research over the past 30 years has shown a distinct connection between the mind and body. Therefore, a person's thoughts and feelings are viewed as interacting with their physiological state and vice versa. Modern biofeedback grew out of the behavioral movement of the mid-1950s (Schwartz & Andrasik, 2003). In biofeedback, physiological responses (e.g., heart and respiration rate, skin temperature, muscle tension) are amplified from sensors attached to the body and fed back to the individual through a computer in the form of sounds, visuals, or both. This information can be used by the person to consciously control the measured bodily processes. With increased awareness of physiological responses, the person can learn to control his or her bodily reaction to environmental events. There are various types of biofeedback modalities used. Table 1 shows the most frequently used biofeedback modalities.

Reactions to stressful events are mediated by the autonomic (i.e., automatic) nervous system (ANS). There are two antagonistic branches of the ANS: the sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS). The SNS stimulates the body's reaction (e.g., heart rate, breathing, pupil dilation) to stressful events by preparing the person to act quickly to respond to an event. Activation of the SNS causes stress to the body, and prolonged activation can lead to organ damage and a reduction in the capability of the body's immune defenses to ward off disease. In some cases, simply the perception (real or imagined) of physiological arousal itself can trigger worry or fear, further exacerbating the physiological response. The PNS is associated with relaxation, control, and improved health status. Increases in PNS activation lead to lowered heart rate; slower, deeper breathing; and improved blood flow.

Hans Selye (1976) proposed the general adaptation syndrome (GAS) as a way of explaining the relationship between stressful events and physiological reactions to them. In the GAS, a person experiences the initial shock of a stressor that activates the SNS. In some people, this SNS arousal may diminish quickly after the stressor remits, but for others the individual remains chronically aroused (e.g., continued SNS activation), resulting in organ damage and illness. The ability of the person to cope with the stressful events and induce PNS activation leads to reduced vulnerability to disease.

Biofeedback provides individuals with direct information on SNS–PNS activation, or their level of physiological arousal. Psychologists can use this information to assist children and adolescents to learn to cope with stressful events through a variety of therapeutic techniques. The general treatment plan for using biofeedback is to help a child or adolescent to: