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**BEHAVIORISM** Behaviorism, the school of psychology founded by John B. Watson, has had relatively little to say about intelligence. In his founding essay, "Psychology as the Behaviorist Views It," published in 1913, Watson urged psychologists to devote their studies only to phenomena that were directly observable, such as human movements and speech. Subjective phenomena, such as thoughts and images, were, he said, outside the domain of science because they could not be observed by anyone except the person experiencing them, and no one, including that person, could actually measure them with any degree of confidence.

Watson's exhortations were interpreted by some psychologists as license to set aside many, if not all, traditional psychological concepts, particularly if such concepts had any connection whatsoever with the mind, feelings, or the will, the traditional subject matter of psychology since the field's inception in Europe in the 1800s. A great many topics were dubbed useless or uninteresting by various adherents to the behavioristic school, including concepts such as self, ego, traits, intention, purpose, attitude, personality, perception, memory, and thought. Since reasoning, like emotion, takes place in one's head and cannot be observed by others, intelligence, too, was largely ignored, with only a few exceptions.

B. F. Skinner, probably the most influential behaviorist of the twentieth century, proposed a variant of behaviorism he called "radical" behaviorism. The radical form was different from Watson's mainly in allowing private experiences to be studied and analyzed. Curiously, Skinner still considered most traditional psychological concepts, including intelligence, to have little use, primarily because they distract people, he said, from looking at the role that the environment plays in determining behavior. If a child's poor performance, he argued, is attributed to low intelligence, we might abandon the search for training techniques that might significantly improve the child's performance. The nature–nurture debate over individual differences, he said, was also just a distraction. "The practical question," wrote Skinner (1968), "is not so much whether these differences are genetic or environmental as whether environmental contingencies may be designed to reduce their scope" (p. 241).

Moreover, we make an error of logic, Skinner argued, when we claim to have explained behavior, good or bad, by making reference to high or low intelligence. Intelligence is, he believed, primarily a description or summary of how well people perform on certain tasks. As Isaac Newton warned centuries ago, to use a description or label as an explanation merely creates an illusion of explanation; in no sense does it provide one.

Skinner (1953) acknowledged that tests of intelligence or other traits could indeed be used to make predictions about future performance, but he stressed that in no sense could intelligence be said to be the cause of such performance, but rather that the prediction is *"from one effect to another"* (p. 199), both performance on an IQ test and subsequent performance being effects of one's genetic endowment and environmental history. The closest Skinner came to suggesting that aspects of intelligence might be worth studying was in his text *The Technology of Teaching* (1968), where he noted that people differ "in speed of learning and forgetting, and as a result in the size of the repertoire that may be acquired and maintained. . . . These," he added, "are presumably the main differences shown by measures of intelligence. Their nature is not clear" (p. 241).

Watson and Skinner have often been said to be extreme "environmentalists"—that is, to believe that all human behavior is learned and that genes play little or no role in individual differences in behavior. In fact, neither they nor most other behaviorists have taken this extreme view. Nevertheless, because many scientists working in the behaviorist tradition have focused their studies on learning processes—in effect, on how behavior is acquired or modified or improved by var-

ious experiences—it is not surprising that they have had little to say about genetic factors. Behaviorists do not actually dismiss genetic factors, but they have historically tended to focus their analyses on the environment. One notable exception to this rule is R. J. Herrnstein, a student of Skinner's, who, in his book *I. Q. in the Meritocracy* (1973), summarized the evidence that genes are important determinants of intelligence.

Arthur Jensen (1984), noted for his strong hereditarian stand on intelligence, has accused behaviorists of claiming that "psychometric tests measure nothing other than the specific bits of knowledge and learned skills reflected in the item content of the tests" (p. 93)—in other words, that IQ tests measure what they test and nothing more. Simplistic thinking of this sort is actually difficult to find in the writings of prominent behaviorists. In any case, Jensen and others have defended the view that intelligence is a general and all-pervasive trait, sometimes represented by the letter *g*. Constructs such as *g* are derived from sophisticated statistical analyses of test scores, especially the technique called factor analysis. Since statistics can usually be interpreted in different ways, and since psychometricians themselves often fail to agree on interpretations, most behaviorists have been wary of this perspective.

Behaviorism is a diverse tradition, with its adherents sometimes having radically different views on the same issue. A few, although very few, individuals who are closely identified with this tradition have written extensively about intelligence. Arthur Staats (e.g., 1963, 1975), proponent of a form of "social behaviorism," defines intelligence as "specific repertoires—systems of skills—learned according to specified learning principles. . . . The repertoires heavily involve language-cognitive skills, as well as sensorimotor and emotional-motivational basic behavior repertoires. . . . [The repertoires] determine how well the individual will learn, how well the individual will solve problems, and so on" (Staats & Burns, 1981, pp. 241–242; also see Estes, 1974). In other words, intelligence consists of basic skills that have an impact on every aspect of performance, including learning itself and even performance on intelligence tests. Staats has supported this view through a number of experimental studies, mainly with children, that suggest that training in certain basic skills can significantly improve performance in new situations and, in fact, improve IQ test scores. Staats and Burns (1981) conclude, "Basic behavioral repertoires can be taught to the young child, and . . . this increases specific intelligence test measures" (p. 292).

Also notable is the work on Hans Eysenck of England, who, although highly critical of Skinner's views, is also identified with the behaviorist tradition. Eysenck has written extensively about intelligence and has criticized Skinner for ignoring it. After a debate with Skinner on this topic, Eysenck (1988) remarked, "I had planned to criticise him on the grounds that genetic factors, personality and individual differences generally were excluded from his scheme. He rather took the wind out of my sails by stating explicitly that individual differences, personality, intelligence and their genetic factors were all of very great importance. If this is true, why are they missing from his books, and why does he thunder against those who work in these fields?" (p. 300).

The answer to Eysenck's question is primarily that it is a matter of emphasis. In the early decades of research on learning, most researchers were searching for general laws of learning, and research and theory progressed well without consideration of genetic factors. By the 1970s, with increasingly subtle phenomena under scrutiny in the learning laboratories, exceptions to the laws became commonplace, and genetic factors were needed to account for them. Even Watson, whose early research was on species-specific behavior in animals, rejected a simplistic environmentalist view in some of his writings, and Skinner wrote several essays about genetic issues in his later years.

Outside the boundaries of the Watson-Skinner tradition in psychology, the pragmatist philosopher George Herbert Mead and the "interbehaviorist" J. R. Kantor offered analyses of intelligence in behavioral terms. Of special note is the work of personality theorist Walter Mischel (e.g., 1981), who has shown that behavior often attributed to traits is affected in orderly ways by the situations people face: "If you want to predict what somebody's going to do in a particular situation now . . . , probably the best estimate will be made from the closest, single approximation of behavior in that situation" (1981, p. 92). In other words, as

Skinner argued, the environment plays an important role in determining what people do.

(*See also:* LEARNING AND INTELLIGENCE; THURSTONE, L. L.)

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