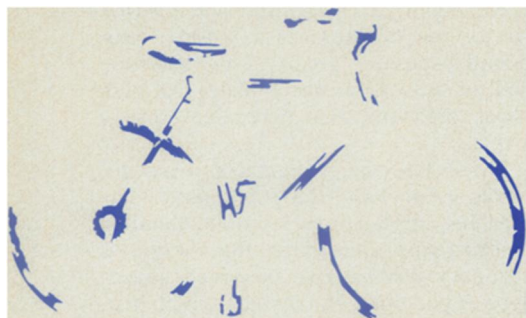


Intelligence Test: Sizing Up a Newcomer

The IQ test is obsolete, according to two psychologists. In its place they would substitute a new kind of intelligence test, one derived from recent neuropsychological research on individual thinking styles. Is the new test fairer or just politically more palatable?



By WRAY HERBERT

In 1904, the Paris school system was severely overcrowded, and the French minister of education made a decision of fundamental social import. He asked psychologist Alfred Binet and psychiatrist Theophile Simon to come up with a way to sort out the children with learning potential from those without—a way, that is, of measuring their intelligence. It was basically an economic decision: By removing from the classrooms the children who were unable to learn, more time could be spent on helping other children to reach their full potential.

Society has never really wavered in its support of mental measurement as a diagnostic tool for educators. Millions of dollars are spent every year on the time-consuming process of assessing individual IQ. Yet in recent years, intelligence testing has come increasingly under fire. Research began to reveal significant racial differences in IQ scores, and it became apparent that as a result of these differences children from racial minorities—especially blacks—were being labeled “retarded” and removed from regular classrooms in disproportionate numbers. In 1972 critics took the testers to court, charging that IQ tests were racially and culturally biased, and in 1979 the U.S. District Court in California ruled that IQ tests could no longer be used for educational diagnosis. Some saw that landmark decision in the *Larry P. v. Riles* case as the coup de grace for the mental testing industry and the concept of IQ.

In the midst of the judge's deliberations in the *Larry P.* case, the American Guidance Service, an educational publisher, contacted Alan S. Kaufman and Nadeen L. Kaufman, two psychologists now at the California School of Professional Psychology in San Diego, and asked them to design a new intelligence test. Five years later the so-called Kaufman Assessment Battery for Children (KABC) is almost ready for publi-

The “Gestalt Closure” task (partial bicycle, above) is intended to tap simultaneous reasoning ability, which emphasizes the synthesis of information presented in space.

cation, and it is being hyped by its publishers as a “revolutionary *new* way to define and measure intelligence!” Announced this fall at the meeting of the American Psychological Association, it is the first new individual intelligence test to be published since the 1930s, and, according to Alan Kaufman, it is the only existing intelligence test to draw on recent advances in neuropsychological research. Doing away with the notion of IQ, the Kaufmans have designed the KABC to measure a purer form of “mental processing ability”; and in doing so, they claim, they have gone a long way toward minimizing the racial and cultural biases that plague existing tests. The testing community is plainly skeptical—about the test's scientific foundation, its validity and its usefulness as an educational tool.

The first intelligence test, the Binet-Simon, used such tasks as naming the days of the week, counting coins, and comprehending written material to arrive at an assessment of learning capacity. Almost without exception, testers today recognize the Binet-Simon (and its American cousin, the Stanford-Binet) as a test of achievement—not a test of intelligence. The Stanford-Binet has fallen into disuse in many schools, and the test that has filled its place, the revised version of the 1939 Wechsler Intelligence Scale for Children, marked an attempt to measure reasoning ability as something separate from language ability—and thus to reduce the biasing effects of culture-bound language. Alan Kaufman played the principal role in the 1974 revision of the WISC.

Today, Kaufman says that the revision of the WISC was not radical enough. “Ten years ago, it was fine, but even then I had the feeling that the publisher was too conservative,” he says. “The WISC has too much of a tie-in with tradition. It's time to start looking at a lot of the research and theory in psychology that has happened since the 1930s and take advantage of it in measuring the intelligence of children.”

The theory that the Kaufmans have taken advantage of primarily is that of the Russian psychologist Aleksandr R. Luria. Luria theorized that certain areas of the brain were responsible for certain cognitive, or intellectual, processes—specifically, that the frontal and temporal areas were the seat of successive or “sequential” processing, the occipital and parietal regions the seat of “simultaneous” reasoning. Based on the idea that some people tend toward a sequential processing “style” and others toward a simultaneous

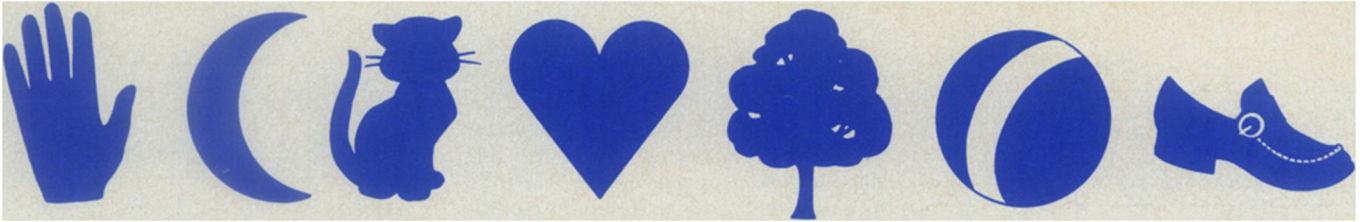
“style,” the KABC is designed specifically to match Luria's cognitive dichotomy.

The test has two cognitive scales: the sequential scale is based on tasks—recalling strings of numbers, for example—that require children to serialize stimuli; the simultaneous scale is based on tasks—interpreting partially completed ink blots, for example—that tap spatial reasoning and the ability to synthesize and integrate information. The tasks involved in both parts of the test are predominantly visual, minimizing the effects of linguistic ability on test performance. “What we're trying to do is be fairer,” Alan Kaufman told *SCIENCE NEWS*. “Our goal is to measure children's ability to process new information and solve new problems, without basing so much of the evaluation of intelligence on what they've already learned.”

Whether or not the KABC is fairer than other intelligence tests is open to discussion—and the answer depends on how bias is defined. The Kaufman test does yield a numerical score—a composite of the sequential and simultaneous reasoning scores—and it is this measure of “intellectual potential” that the Kaufmans offer in place of the traditional IQ. The Kaufmans have conducted some 40 validity tests on the KABC and have found among other things that the test reduces the “mean difference” between blacks and whites by half—from about 15 points to seven; similarly the KABC produces a negligible difference between Hispanic and white children, suggesting that the test has overcome the language barrier that handicaps Hispanics.

But according to psychologist Harold W. Stevenson of the University of Michigan, the fairness may be illusory. “It's absolutely impossible to eliminate cultural bias,” he says. “You build a test in a culture, and how to transfer it across cultures has eluded everyone who has ever thought about it.” He notes that bias is not carried exclusively in language. Working in Peru, he recalls, he designed a “horrible test,” which required the child to imitate an adult's movements. “The task had no verbal part to it, but the child was so upset at calling attention to himself that the test was not very good,” Stevenson says. The KABC includes a movement imitation task very much like the one Stevenson describes.

Still others dispute the significance of any reduction in group scoring differences. Arthur R. Jensen, psychologist at the University of California at Berkeley and author of *Bias in Mental Testing*, says



In the "Word Order" task, the tester speaks a series of words out loud, and the child is instructed to repeat the words in order — either by speaking the words or by pointing to the corresponding images. The task is designed to measure the ability to think sequentially — that is, to process information that is presented through time.

Illustrations: American Guidance Service, Inc.

that designing a test that eliminates group differences is easy but meaningless; the real proof of a mental test, he says, is if it can predict performance. Jensen argues in his book that the existing intelligence tests are not racially biased, that they do predict academic performance quite well. He points out that the National Academy of Sciences came to the same conclusion in its review of ability testing last year; it follows, he says, that if a test is designed to mask a real difference between groups, then it will predict poorly. "I'm not excited about the Kaufmans' test," Jensen concludes. "I'm most impressed with how non-innovative it is."

Jensen, who is best known for his controversial view that intelligence is genetically determined, also says that he is not surprised that the kind of test the Kaufmans have designed minimizes racial differences. The KABC, he says, seems very much like other tests (such as the Queensland Test, designed to test Australian aborigines) that deliberately circumvent language and rely heavily on short-term memory. "I pointed out years ago that this is one ability on which blacks and whites don't seem to differ much at all," Jensen told SCIENCE NEWS. "The purer the memory test is, the less difference you get between blacks and whites. But they're not a very good measure of intelligence, using the core definition of the term as some kind of reasoning or problem solving ability." Jensen says that Orientals, in contrast, do relatively poorly on memory tasks; as a result, he says, the KABC may systematically depress their scores. It remains to be seen, he says, whether or not the Kaufman test will be a reliable predictor of classroom performance.

Kaufman rejects Jensen's criticism, in part. While conceding that the KABC does contain many short-term memory tasks, he says that it is not memory per se that is being tapped; instead memory tasks are being used to tap the sequential and simultaneous abilities that define intelligence. But more to the point, Kaufman says, Jensen and others are overvaluing prediction. "There has been this feeling that one of the main justifications of intelligence tests is that they predict school achievement. Our feeling has been that if you want to predict school achievement, why not measure school achievement. If your sole purpose is prediction, why beat around the bush?"

While conceding that the KABC does not predict as well as existing tests, Kaufman argues that it should be more useful in de-

signing educational plans for individual students. "It's our basic feeling that if the intelligence scales are to be used properly, you have to be thinking about the present," Kaufman says. "Ours is a more active intelligence scale. It can be used to learn more about the child's approach to solving problems and his approach to learning. It will help you intervene and do something about the future rather than sit back, predict, and let the future happen."

Others, while agreeing with Kaufman's philosophy of testing, question whether or not the KABC is grounded well in theory or applicable in practice. There is disagreement, for example, about Luria's work and what it offers for the testing of normal intelligence. Johns Hopkins University neuropsychologist Alphonso Caramazza, while an admirer of Luria, says that his work is too "theoretically impoverished" to be used as a foundation for an intelligence test. "There is information indicating that various kinds of sequential patterns are controlled by various parts of the brain," he says, "but there is no evidence of a separate independent neurological center responsible for non-sequential organization." Luria's claims about the breakdown of intellect are shallow and invalid, Caramazza says. "They were made during the 1950s; neuropsychologists today don't hold to them any longer."

Charles Golden, a University of Nebraska psychologist who has also incorporated Luria's theory into his Luria-Nebraska Neuropsychological Battery, counters that Luria's work offers a "sound theoretical approach to normal intelligence." He agrees that the notion of simultaneous and sequential "styles" of cognition remains theoretical, and he suggests that the breakdown is probably more complicated than that. "But in normal individuals, the idea of general simultaneous and sequential processes is more than likely true. The Kaufman [test] is an advance over what we've got to date. Whether it's the ultimate test is another issue."

Kaufman, in reply, says that the KABC is not founded entirely on the work of Luria; it has also drawn on the work of cognitive psychologists and split brain researchers. But he also argues that Luria's dichotomy is meaningful — and especially meaningful when it comes to testing for educational intervention. "For an intelligence test to be practical, it needs to be based on a fairly simple model. We're not after a research tool, but a practical clinical tool that is simple and straightforward," he says. "The more complex the theory, the more com-

plex the measurement and, therefore, the more impractical for the real world."

Others challenge the Kaufmans' strongest claim — that the KABC scores enable teachers to tailor curricula to individual students. University of Georgia psychologist Asa Hilliard says that the KABC is essentially based on the "same old model of testing, in which the sole function is prediction. Prediction has no educational value. The students are still going to show up on Monday and the classroom teacher will say, 'So he's got this or that particular cognitive style ... what should I do now?' The Kaufman test is an attempt to save a practice that has made no positive contribution to education."

Kaufman seems more surprised by this line of criticism than any of the others. He says that Hilliard is simply not aware of the research that he and his wife have conducted — research that, he says, provides strong evidence that teaching strategies can be designed differently for sequential thinkers and simultaneous thinkers. Contrary to the traditional model of trying to correct children's specific deficits, the KABC has been designed to provide information about a child's strengths so that teachers can capitalize on these strengths in teaching. Kaufman says he has demonstrated the superiority of this so-called "strength model" in teaching reading to children.

In the end, reactions to the KABC seem to reflect a fundamental philosophical rift in the testing community. Those who think mental measurement should above all tell how a child will perform won't like the KABC; for those who think a test should be designed so that children of different backgrounds do equally well, the KABC (more than any existing test) accomplishes that goal. Kaufman concedes that eliminating group differences in test scores was one of his major goals. He says, however, that the equalizing of scores is not artificial, but rather the result of creating a fairer test, one that circumvents environmental advantage. On that point, Hilliard agrees. The test does seem to measure what children are able to learn rather than what they know, he says, and the equalizing of scores across racial groups should help to prevent the invidious racial comparisons that have been made in the past. But the main advantage of the KABC, Hilliard and others conclude, is political. Whatever its weaknesses, it may be the only test around that will suit the courts and, as Hilliard says, "It'll keep the bias people off his back." □