

The Use of Psychological Techniques in Tests of Deception

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A summary of the work of experienced examiners in deception indicates that errors in the interpretation of their graphs do not exceed 3 per cent. However, an additional 17 per cent of their graphs are too indefinite for them to make a finding of deception.¹ This means that one out of five suspects is an emotional or mental deviate who cannot be successfully tested with the methods in common use.² Apparently some new techniques are needed which will give valid results in these cases. The psychological techniques outlined in this paper have been found useful in testing deviates whose reactions are difficult to interpret.

The first technique used is the determination of the psychological type of the suspect, that is, whether he is a normal reactor or a deviate. Typing the suspect answers the question: Would this suspect, if given the opportunity, be likely to commit a crime of this kind?

Four types of deviates may be identified from tests made with the Reactograph,³ an extremely sensitive recorder of pulse, blood pressure changes, respiration curve, and skin conductance,⁴ together with timing and signal devices. These four types are the dead-pan,⁵ the neurotic, the compulsive neurotic and the free explosive psychotic.

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¹ Cureton, *A Consensus as to the Validity of the Polygraph*, 22 Tenn. L. Rev. 728-729 (1953).

² The Lie Detector, as is well known, is based on the principle that an emotional disturbance will register in the physiological reactions. It is assumed that, if an individual should lie about some matter, he will develop a certain amount of anxiety due to pangs of conscience (or the possibility of detection), and this anxiety in turn will cause his blood pressure to rise, his respiratory and pulse rates to increase or will be manifested in other physiological changes. That this assumption has been said not to hold completely true for some abnormal personality types, see Floch, *Limitations of the Lie Detector*, 40 J. of Cr. L. & Criminology 651 (1950).

³ The Reactograph is in use at the Ohio State Bureau of Identification and Investigation; the Crime Laboratory of the Columbus Police Department; the Indiana State Police Laboratory and the Alfred L. Willson Children's Center Clinic.

⁴ This graph is the quantitative recording of a tiny, variable electric current, flowing through electrodes attached to the palmar surface of the middle fingers of each hand.

⁵ See, *Why Julia Misbehaves*, GEN. ELECT. DIGEST (Sept.-Oct. 1950).

The dead-pan syndrome is probably the basic deviate type from which the other three types develop. It is found in about one in ten delinquent children tested on the Reactograph, but is rare in adult suspects. This syndrome may be identified from the skin conductance graph, which is almost a straight line. The behavior characteristics of the juvenile dead-pan are a drawn, tense expression; the inability to laugh or relax; a readiness for tears under emotional stress and a wild look when angry. Dead-pans lack perspective, do not plan for the future and live only for what satisfaction the present offers them. Their emotional life, if such it could be called, is completely self-centered.

Physically, the dead-pan has a significantly negative basal metabolism rate, with the possibility of an hypoactive endocrine system. In tests of masculinity-femininity,⁶ the dead-pan boy has an effeminate score; the dead-pan girl, a masculine score. Overt homosexual behavior, however, is rare; they appear to be in an asexual state.⁷ The intense repression of emotional reactions is an intolerable state which cannot last into adult life without deterioration of the personality. If it does so persist, it apparently degenerates into early schizophrenia. About 40 of 100 adult patients at the Logansport, Indiana State Hospital,⁸ were found to be dead-pan on the Reactograph. Most of these patients were of the catatonic type.⁹

Remaining a dead-pan and becoming a catatonic schizophrenic is not the only prognosis for the dead-pan. The other three deviate types of behavior are believed to have their origin in this syndrome. The dead-pan may develop a neurotic type of reaction as a result of intense anxiety. The neurotic tends to funnel his emotions into a few areas while many other areas remain dead-pan. These explosive areas often send the skin conductance curve off the graph. Neurotic reactions explode directly in response to a stimulus, not at random, as in the psychotic type. Should one of these neurotic reactions coincide with the reaction to a question concerning a crime, the graph might be wrongly interpreted as indicating deception instead of as a basic neurotic pattern. For example, suppose the word "lie" arouses a neurotic reaction because of childhood

⁶ Such as the Terman-Miles Attitude-Interest Tests.

⁷ Recently hormones together with psychotherapy have been used in the treatment of dead-pans with favorable results in changing personality.

⁸ Dr. John Larson, superintendent, who could be justly named, "the father of lie detection," was in charge of these experiments. His book, *Lying And Its Detection* (1932), is still in general use.

⁹ *Catatonic*. A state found in some forms of schizophrenia, in which energy seems maintained either at a very high or very low level. In catatonic excitement, the patient exhibits apparently purposeless overactivity. In catatonic stupor, he fails to respond to, or pay attention to, external stimuli. [Davidson, *Forensic Psychiatry* (1952)].

conditioning. The reaction might resemble that of deception. When the area of the neurosis is understood, the examiner controls the test by using the word, "truth."

Neurotic behavior is more likely to distort the personality of the individual; compulsive behavior to harm society. That is, the compulsive is usually of a criminal type. The compulsive differs from the neurotic in the degree and nature of his compulsion. Both types have a compulsion to behave in a certain way.

It should be noted at this point how much of the deviate behavior of adolescence and adult life can be traced back to the environment of infancy. Almost without exception, the early life of the dead-pan is one of frustration, unhappiness, and inhibition of his normal reactions. These children never develop the emotional reactions toward parents commonly called love. Hostility develops toward one or both parents and later becomes a psychotic hostility toward society. Both neurotic and compulsive behavior is also conditioned in early life, probably by the sixth year.

The frustrating early life of the dead-pan makes him vulnerable to conditioning experiences, that is, to two or more incidents taking place at about the same time and thus becoming associated or bonded together in stimulating reactions. If the child were normally happy these experiences would have had little effect on him. Because of his unhappy state he craves the satisfaction of the conditioning factor, which is often sexual. Fire, for example, acquires its power over the child because it is associated with sex in some experience. Thereafter the sexual drive is enhanced by the act of setting fire to such a degree that the child is helpless to resist the force of compulsion. Sex is always suspect as a factor in any compulsive neurosis. Peeping toms, fetishism, exhibitionism, kleptomania and many other forms of compulsive behavior are examples of sex-conditioned compulsions.

Sometimes severe repression of the compulsive behavior takes place in which the compulsion is driven into a period of latency by cruel and severe punishment or by pain resulting from the experience, as in the case of fire. This period of latency often extends well into adolescence when another experience, similar to the first, triggers off the original behavior. The compulsive behavior is much stronger because of the sexual drives of adolescence. It should be noted, however, that sex crimes of a compulsive nature are often the work of individuals with an endocrine imbalance or deficiency, often hypogonital. In some cases the culprit is apparently normal physically but impotent sexually when deprived of the stimulation of the conditioned factor, as fire, for instance.

A point frequently overlooked in studying the causes of compulsive arson is that early sexual incidents involving fire are some-

times conditioned to the act of striking a match or in tossing a match through the air as in playing "dive bomber." The act of starting the fire thus becomes the source of the sexual stimulation. Arson investigators will discover that this type of arsonist is at home and in bed when the fire alarm is turned in, a type of behavior which is not of much aid in his apprehension. Incendiary fires of undetermined origin are often the work of this type of arsonist. Studies made of compulsive arsonists, using the Reactograph to explore the conditioning, repressive, and triggering off incidents, show the importance of spotting these deviate individuals and of treating them when they are young. In one case studied, the pattern was discovered more than a year before extensive fires were set. Needless to say, treatment was not given until after the fires. Sex play with siblings was conditioned to the act of throwing matches. Severe punishment followed with a latent period lasting until mid-adolescence. This individual was hypogonital.

In another case where the parental punishment was extremely severe, consisting of burning with cigarettes, cruelty, and mental torture, a notorious compulsive arsonist was the inevitable result. Other arsonists have been conditioned by bonfires or some conflagration. These compulsives should be looked for at or near the fire they have set. Occasionally a child may be conditioned to fire apparatus making a run. His specialty will then be the turning in of false alarms, then placing himself in position to see the run being made. One youngster of this type goes into a spasm of nervous ecstasy which he calls a "shivaree" while watching the run. This case is under study but it is interesting to note that this boy's childhood was spent in the shadow of a fire station. He is likely in a repressed latent period at the present time.

When a suspect being given a deception test is found to be a compulsive arsonist, the next step is to check his opportunity to commit the offense; in other words, check the validity of his alibi. In all cases of neurotics and compulsives, the objective is the securing of a confession. These types are more likely to confess than the psychotic. The examiner who understands what to look for in compulsive crime and who knows why it takes place is more likely to get confessions.

The "free explosive" psychotic is the most important type to recognize in a deception test since his specialty is a crime of violence. The term "free explosive" is a description of the way skin conductance reactions explode at random with little relationship to the stimulus or test pattern. A graph may have twenty or more of these free explosions, many of them of higher altitudes than those resulting from reactions to the examiner's questions. The respiration is also highly diagnostic, with many unique and vari-

able patterns of breathing in the same graph. The blood pressure graph will contain many areas of hostility, shown by sustained rises of blood pressure. Delusions, which are as real to the suspect as what happened, probably account for many reactions.

These psychotics with the free explosions are not usually insane in a legal sense. This condition is often found in juvenile delinquents, where the offense is one of violence. Deception tests are difficult to interpret because these individuals have no twinges of conscience or feelings of remorse for what they have done. Their intense self-interest is their vulnerable point in a deception test. This type of suspect is likely to know something of lie detection, having acquired the sort of information passed around by parolees. As a result of this "training" they often attempt to control their reactions by modifying the breathing pattern and attempting to blot out blood pressure changes by muscle pressure on the arm. These attempts to malingering are easily detected, however. In their attempt to control the recorded reactions, they forget the many body movements which they would control were they under questioning by a detective, for example. The psychological techniques used with this type make use of these vulnerable points.

The first point of attack is the old-time device, known as the number or card test. In the number test the suspect writes a number on a piece of paper, tucks it in his pocket and then by instruction, answers "No" to all questions concerning the number written. This compels him to lie about the number written. Now this test, or rather trick, has little value as a determinant of deception as commonly used. Its purpose is to gain a psychological advantage over the suspect. The examiner usually knows by one trick or another, which number was written or which card was pulled. If the examiner cannot determine from the reactions alone which number was written, how can he use it as a yardstick to measure deception in the remainder of the test? The suspect usually recognizes this test as a trick and as a result loses confidence in the entire test. Trickery, in any form, in a test of deception, has no place among the psychological techniques. Honesty and fair treatment should be the universal rule.

The value of the number test depends upon offering it to the suspect as an opportunity to deceive. He may be told to think of a number, giving him the opportunity for deception. If he attempts some open form of malingering, as in writing a 6 which may turn out to be a 9, or a 1 which is a 7, this should be taken as indicative of deception. Generally, the more difficult it is to discern the number from his reactions, the more likely he is to be telling the truth. If the suspect intends to deceive, he will try to deceive in the number test as well as in other tests. Suspects often contend that they

fail to understand instructions, answering "Yes" to the number written. Their remarks after the test are significant in scoring it. The suspect will often tell the number he has written before the examiner has had an opportunity to examine the graph, a good sign of attempted deception. The number test properly used is a useful determinant of deception.

The suspect who has made his mind up to deceive is apprehensive in taking a test of deception. His remarks before, during, and after the test are a part of the test data and should be so recorded. Will he be shocked? Are needles used? He may carefully explain that he is very nervous or has a bad heart. During the test his body movements should be carefully observed, especially those of the throat and mouth, hands and feet. A prone position on a couch is recommended for testing, for better observation of bodily movements under conditions of complete relaxation. Movements may be intentional to cover reactions to crucial questions, or they may be involuntary. If the latter they often indicate deception. In one case where one thousand dollars was stolen and cached away, the loot was located because one woman suspect wiggled a big toe when attempting to deceive. Objective observation and recording of data of this kind is helpful in testing deviates.

The exposure on a screen of a standardized collection of pictures, such as the T.A.T. series,¹⁰ is another psychological device for determining deception. The suspect is instructed to look at each picture and think about it. Nothing is said by examiner or suspect throughout the test. The usual reactions are recorded, together with the exposure time of the picture. The suspect should be observed for attempts to malingering, as by closing his eyes to significant pictures. These pictures and other series made up for a particular crime have been found to be effective in determining deception. A series of pictures of this kind is valuable in the screening of a number of suspects, for only the guilty one will recognize the significant picture and react accordingly. Series of pictures of guns, instruments of violence, crime scenes, etc., could be made up in advance. The critical picture, printed in exactly the same way, could then be inserted in the series. The pictures should be printed in soft and shadowy tones to suggest detail rather than delineate it. The suspect's vision should be checked under test conditions.

Successful testing of deviate types requires an instrument with greater sensitivity than is needed for run-of-mine testing. The neurotic, for example, is very sensitive to any discomfort. The high cuff pressure of 90 mm. or more, used to record blood pressure

¹⁰Thematic Apperception Test (Morgan and Murphy, Harvard, 1935). A series of pictures, ambiguous in reference, which the subject is asked to use as a starting point for fantasy.

changes on some of the older polygraphs, becomes intolerable to the neurotic in a few minutes. Whereas the suspect with stable emotions can stand the discomfort and still run a satisfactory test, the neurotic, be he guilty or innocent, sighs, moves his position and generally lays himself open to the charge of malingering, with its implication of deception. Cuff pressures should not exceed 70 mm. Many tests are run with pressures as low as 45 to 60 mm. With these low pressures tests of an hour or more may be run in comfort. Although the description of the tambour used on the Reactograph has been published,¹¹ the extremely fine tolerances required in manufacturing have prevented its use generally. Extreme sensitivity is also required in skin conductance. On the General Electric recording potentiometer two-tenths of a microampere change in conductivity will move the recording pen nearly six inches. Reactions thirty inches in height are often projected with this recorder.

Sensitivity may be lost with any instrument when the electrodes are improperly attached. It is the palmar surfaces of the hands and feet which are under the control of the autonomic nervous system and not the backs of the hands, which are under the control of the heat regulating or vasomotor system. Changes in resistance, caused by sweating reflexes in the palmar surfaces, indicate emotional changes. Placing one electrode on the palm, the other on the back of the hand, could result in one reflex, the antinomic, cancelling out the other, the heat regulating. The resistance values are doubled when both electrodes are attached to the palmar surfaces, giving greater sensitivity. The attachment of one electrode to the finger of each hand makes little difference in total body resistance, which is mainly in the skin.

Respiration, when not consciously controlled, is the best indicator of deception of the three reactions. It is an advantage to record respiration with twin pneumographs, one recording thoracic respiration, the other abdominal. Deviates often shift their breathing away from one pneumograph, resulting in a weak recording of respiration.

In nearly every discussion of tests for deception, the question of their admissibility in court is raised. Several problems must be solved before lie detection can take its place along with finger printing, blood tests and other accepted scientific evidence. This paper has proposed a solution for some of these problems. As long as reliable tests cannot be obtained from one person in five, the other four are placed in doubtful status so far as the use of their graphs in court is concerned. Dean Wicker, of the University of Tennessee

¹¹ Higley and Renshaw, *An Improved Device for the Continuous Recording of Respiration and Changes in Blood Pressure*. 4 JOURNAL OF PSYCHOLOGY, 281-285 (1937).

College of Law, gives as the second of two reasons why the courts have refused to admit testimony based on polygrams: ". . . the absence of widely recognized and accepted professional standards as to the principles, equipment, and qualifications of polygraph examiners, and the conditions under which the examinee is a 'fit subject.'"¹² Inbau, who has written one of the recent books on lie detection, lists "unqualified examiners" and "unfit subjects" as causes of many errors and inconclusive test results.¹³

Some of the usual techniques for lie detection have not been considered in this paper but it is understood that they constitute the core of any test of deception. They include the evaluation of the test as a whole; the differential reactions to control and crucial questions; anticipatory responses to known series of questions; peak-of-tension reactions to very similar questions of a series, as when fishing for information; intensive questioning on minor details of a crime, sometimes called the entering wedge technique; prior instructions to answer "No" to all questions of a series, often used in screening a number of suspects where only the guilty knows when he lies; delaying the response for five or more seconds, and finally showing the suspect his reactions on his own graph which, as an innocent suspect he should clear up on the next run. Many other techniques could be added to the list.

Each of the ten or more standard and psychological techniques herein described are scored Positive, Neutral, or Negative for deception. The summation of this score should be predominantly Positive or Negative. A Neutral score results when a given technique shows neither negative or positive results or where for some reason a test was invalidated.

In conclusion, it has been shown that the scoring of ten or more techniques for testing deception as positive, neutral, or negative, makes it possible to test many deviate types whose reactions cannot be correctly interpreted under the usual methods of testing. The inclusion of these psychological techniques with regular testing methods together with the use of more sensitive instruments will reduce the number of deviates or "unfit subjects" who cannot now be tested.

¹² Wicker, *The Polygraphic Truth Test and the Law of Evidence*, 22 TENN. L. REV. (1953).

¹³ Inbau, *Lie Detection and Criminal Interrogation* (2nd. Ed. 1948), and Inbau, *Some Avoidable Lie Detector Mistakes*, 40 J. CRIM. LAW CRIMINOLOGY 791 (1950).