

methodological aspects of lie detection exist in the universities and research organizations; and in industry for the development of new equipment.

However, research and development does not possess magic properties. It is not likely that a new sensor * * * or a computer program will tell us whether a person is lying. Some research must be undertaken simply to determine whether additional sensors can improve the lie detection procedure. There is a need for experiments with, perhaps, six to ten sensors to determine the contribution each physiological indicator makes, alone and in combination, to the accurate estimation of deception by objective—that is not subjective—means. This has never been done and it is a basic step in an improvement program. Another problem is to develop a series of test situations (from simple and artificial to complex and real) in which experiments on lie detection can be performed with a reasonable expectation that the conclusions will apply to real life situations. With these considerations in mind, a research and development program based on the following guidelines should be undertaken.

A. Study the taxonomy of deception to identify the various types of deception that may exist and the types of responses that might be present in interrogation situations.

B. Develop record reporting procedures which will permit a continuing assessment of the effectiveness of lie detection. Examine the possibility of using already existing records for the purpose of evaluation. The purpose of such studies should be to determine the validity of lie detection in day-to-day operations in situations of interest to the Department of Defense.

C. Determine the reliability of the current polygraph technique by comparing the results of different examiners working independently on the same real life case material.

D. Support laboratory studies in which simultaneous recordings are made of six to ten physiological indicators to determine the reliability of measurement and the relative contribution of each indicator, either alone or in combination, to the validity of lie detection. The following indicators are suggested:

Breathing pattern.

GSR.

Heart rate.

Plethysmograph.

Blood pressure:

Systolic.

Diastolic.

Skin temperature.

Pupillary response.

Muscle tension potentials.

This research should also examine the feasibility of on-line data processing of multiple indicators to yield a product(s) useful to guide the examiner during the interrogation.

E. Develop new equipment in support of laboratory studies:

* * * Sensors: Because of recent developments in medical electronics and bioastronautics, many new sensors and transducers are now available to replace those in present use. The new sensors should be adapted to meet lie detection requirements in order to improve reliability of measurement and convenience of use. Some new sensors will also be required for experimental purposes involving the additional physiological indicators noted above.

F. We must study the possibility that prior conditioning, drugs, or hypnosis, could be used to introduce spurious effects into test records and the steps that should be taken to detect and counteract such influences.

G. The possibility that individuals exhibit unique patterns of autonomic response should be explored to determine whether a preliminary part of each examination could be directed to identify the indicators in which that individual is more likely to respond.

H. Interview procedures associated with use of the polygraph should be evaluated to insure that the content, form, and order in which questions are used contribute to the maximum possible extent to an effective interrogation.

I. Applied research directed toward specific applications of the polygraph (e.g., screening refugees from Cuba, East Germany, or North Vietnam, or for inspecting an arms control agreement with the U.S.S.R.) should be undertaken to identify the technological and procedural problems which must be solved in order to interrogate individuals in foreign languages, foreign cultures, different status systems, and with divergent political allegiances. There are, obviously,