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This exploratory study was designed to examine the effects of individual differences in electrodermal lability and state-trait anxiety on the detection of deception. Eighty-two males participated in this study. Half were assigned to the programmed innocent group and half were assigned to the programmed guilty group. Data were analyzed from the 75 subjects who completed the study. At the beginning of the study each subject completed forms Y1 and Y2 of the State-Trait Anxiety Inventory (STAI) which measures situational (state) and inherent (trait) anxiety. Upon completion of the inventory, subjects underwent a session in which nonspecific, spontaneous SCR were recorded for 5 minutes. This was followed by repeated presentation of a 5-second, 70 dB, 1000 Hz tone until habituation occurred. Immediately following the habituation trials a Control Question Test, Psychophysiological Detection of Deception examination was conducted. The tests were scored by two examiners, blind to the group assignment of the subjects. The proportion of the subject sample accurately detected using SCR amplitudes was not significantly above chance. The detection level of the blind scorers was not significantly above chance, however, the interrater reliability (measured by a multiple rater kappa test) was significantly above chance. No significant relationships were found among electrodermal lability and state or trait anxiety and the detection of deception.

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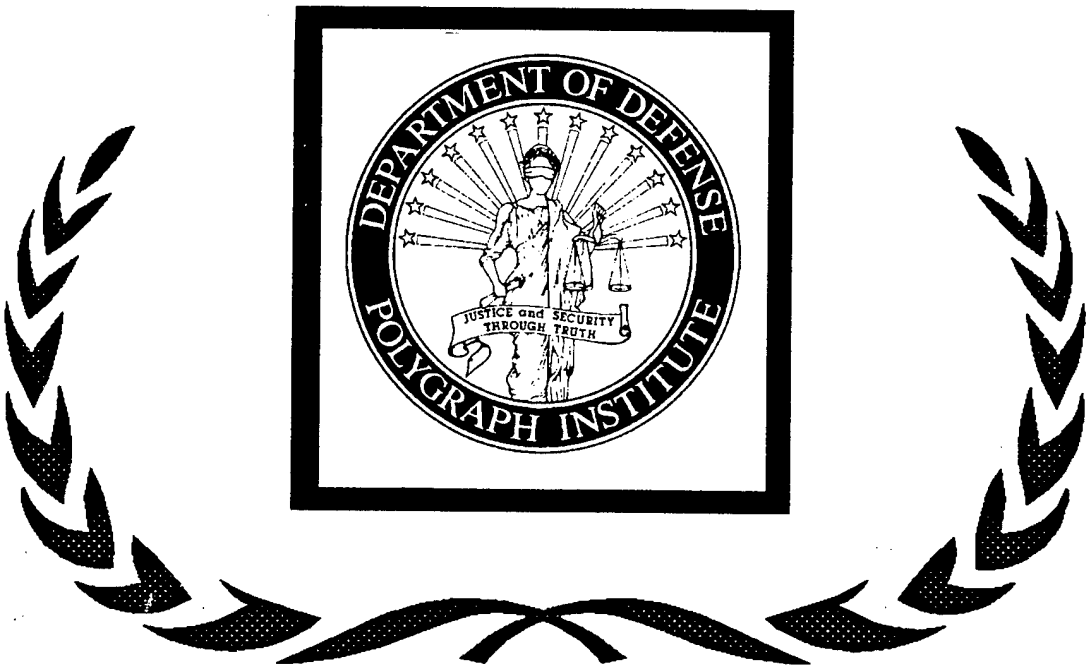

Effects of Electrodermal Lability and Anxiety on the Electrodermal Detection of Deception with a Control Question Technique

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September 1994

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September 1994

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Director's Foreword

Among the many variables suspected of influencing the results of a psychophysiological detection of deception (PDD) examination is a category which psychologists label individual differences. Individual differences include all of the features and characteristics which make one individual different from another. These include physical characteristics such as height, weight, hair color, limb length, and psychological characteristics such as introversion, intelligence, general anxiety level, and aggressiveness. In most PDD research studies it is assumed, though obviously not correctly, that all examinees are essentially the same. Failure to correctly determine subject veracity is generally attributed to inappropriate or incorrect procedures, lack of instrument sensitivity, or examiner errors. In many cases, however, the problem could be due to the failure or inability to properly assess and respond to individual differences among examinees. Perhaps the accuracy of a PDD examination can be improved if individual differences are properly evaluated and accommodated.

This report describes an exploratory attempt to measure individual differences in anxiety and to evaluate how those differences influence skin conductance responses. This is a preliminary attempt to address an important area of concern to the PDD discipline.

Michael H. Capps
Director

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Abstract

Ingram, E. M. Effects of electrodermal lability and anxiety on the detection of deception with the control question technique. September 1994, Report No. DoDPI94-R-0004. Department of Defense Polygraph Institute, Ft. McClellan, AL 36205.--This exploratory study was designed to examine the effects of individual differences in electrodermal lability or spontaneous electrodermal responding, and state-trait anxiety on the detection of deception using the skin conductance response (SCR). Eighty-two males participated in this study. Half were assigned to the programmed innocent group and half were assigned to the programmed guilty group. Data were analyzed from the 75 subjects who completed the study. At the beginning of the study each subject completed the Self-Evaluation Questionnaire, forms Y1 and Y2 of the State-Trait Anxiety Inventory (STAI). The STAI measures situational (state) and inherent (trait) anxiety. Upon completion of the inventory, subjects individually underwent a session in which nonspecific, spontaneous SCR were recorded for 5 minutes. This was followed by the repeated presentation of a 70 dB, 1000 Hz tone of 5-second duration until habituation occurred. Habituation criterion was two consecutive nonresponse trials. Immediately following the habituation trials a Control Question Test, Psychophysiological Detection of Deception examination was conducted. The tests were scored by two examiners, blind to the group assignment of the subjects. Data analyses indicated that the proportion of the subject sample accurately detected using SCR amplitudes was not significantly above chance. The detection level of the blind scorers, who used traditional scoring methods was not significantly above chance, however, the interrater reliability (measured by a multiple rater kappa test) was significantly above chance. No significant relationships were found among electrodermal lability and state or trait anxiety and the detection of deception.

Keywords: electrodermal lability, skin conductance response, individual differences, control question test, detection of deception, state-trait anxiety, habituation rate

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Law enforcement in the United States often uses a psychophysiological detection of deception (PDD) examination to determine whether or not individuals suspected of crimes are being truthful about their involvement. The control question test (CQT) is the most commonly used test format (Honts, Raskin & Kircher, 1986). The successful use of the CQT depends on guilty individuals showing larger responses to crime related relevant questions than to noncrime related control questions. Innocent individuals, on the other hand, are expected to show the opposite pattern of responding. Understanding the factors that contribute to the pattern of differential responding is important in better understanding the nature of the processes underlying PDD.

Research on this issue has shown that factors, such as how thoroughly a subject processes the test items and how well the subject is socialized, have influenced detection (Waid, Orne, Cook, & Orne, 1978). Waid, Orne, and Wilson (1979), found that they were able to discriminate between deceptive and truthful subjects based on the subject's level of socialization. Other researchers have taken a similar position by suggesting that factors such as personality traits and individual difference characteristics may affect the ability to discriminate between deceptive and truthful individuals by influencing differential responding (Barland & Raskin, 1973; Honts, Raskin, & Kircher, 1986). Since this research suggests that underlying processes such as these can influence the differential responsivity necessary for PDD decisions, further study is merited.

Consequently, two factors that can readily be considered for further study are electrodermal lability and anxiety. Since both appear to be involved in an individual's responsiveness to stimuli, they are likely to have an impact on the differences in responses necessary to the PDD decision processes. Therefore, processes of the type studied by Waid et al., (1979) merit further examination.

The individual difference concept of electrodermal lability stemmed from work by Mundy-Castle and McKiever (1953). They differentiated between two types of electrodermal responses that occurred in response to presentations of series of auditory stimuli. The two types of responses were those that were elicited by the stimulus and those that occurred spontaneously. They used the term lability to describe the continuum along which individuals are distributed with regard to the occurrence of spontaneous responses. At one end are those subjects who produced no spontaneous responses, while at the other end are those who produced many spontaneous responses. Lacey and Lacey (1958), went on to describe these individuals as "stabiles" and "labiles" respectively. In addition to using resting levels of spontaneous skin conductance responses (SSCR) to define electrodermal lability, researchers have also used definitions that refer to an individual's level of responsiveness to stimuli such as rate of

habituation of the skin conductance orienting response (OR), (Crider & Lunn, 1971; Hastrup, 1979; Sostek, 1978). For instance results from studies by these same authors (Crider and Lunn, 1971; Hastrup, 1979; and Sostek, 1978) indicate that labile subjects require more trials to habituate (slower habituation) than stabile subjects. Moreover, Bull and Gale (1973) found labiles classified on the basis of trials to habituation and frequency of SSCRs to have the larger magnitude responses to a series of auditory stimuli. Schell, Dawson, and Filion (1988) conducted a study in which skin conductance and heart rate were recorded during a rest period. The rest period was then followed by presentations of a series of 1000 Hz tones. They found that labiles exhibited larger skin conductance responses (SCRs) to the tones than subjects classified as stabiles.

However, the most widely reported performance difference between labiles and stabiles has been that labiles are more successful with signal detection tasks requiring sustained vigilance (Coles & Gale, 1971; Sostek, 1978; Vossel & Rossman, 1984). This difference is thought to result from the electrodermally labile individual's ability to more ably allocate information processing capacity to important stimuli (signal stimuli), and to more capably maintain the necessary levels of attention for optimal responding over time (Schell et al., 1989; Katkin, 1975). It is this performance difference that likely has the most significance for the PDD.

If lability is conceptualized as a variable that reflects individual differences in attending to and processing information, then electrodermally labile individuals should differ from stabile individuals in the way in which information processing mechanisms operate in different situations. In the PDD the relevant and control questions represent signal stimuli to which the individual must respond. The value of these signal stimuli to each individual is based on the consequences that the individual's responses to these stimuli have. For instance, responding in PDD situations can usually be related to the possible loss of personal freedom as a consequence (Backster, 1962). Therefore, the significance of the signal stimuli in the context of a PDD exam is such that a large investment of attentional resources is expected to be made available. Thus, the labile individual with the availability of more attentional resources to apply to the situation and the propensity for greater responsivity will produce larger magnitude responses to the most significant stimuli. Since significant stimuli tend to contribute to the elicitation of larger electrodermal responses than nonsignificant stimuli (Bernstein, Taylor, & Weinstein, 1975), the labile subject will have greater magnitude response differences to the questions representing different levels of significance.

Anxiety, on the other hand is currently used to refer to two related, but logically different, concepts. The concepts of state and trait anxiety were first introduced by Cattell (1966) and developed further by Spielberger (1979). Spielberger conceptualizes state anxiety as a transitory state of anxiety (subjective feelings of tension, apprehension, nervousness, worry, and activation or arousal of the autonomic nervous system) that can recur when evoked by appropriate stimuli. On the other hand, he notes that personality traits can be seen as relatively enduring differences among people in tendencies to perceive the world in a certain way and to behave in a specific manner. Thus, trait anxiety refers to stable individual differences in anxiety proneness.

The rationale for the assumption that different levels of anxiety influence differential responding in control question PDD tests is based on the following notions. First of all, one general assumption underlying CQT based lie detection techniques is that a person experiences feelings of guilt or increased emotionality during the act of lying, and these emotions produce behavioral and physiological changes which serve as indicators of deception (Reid & Inbau, 1977). Second, response differences to relevant and control questions reflect differences in the degree of personal threat perceived to be associated with the two different types of questions. Thus, according to Backster (1962), the fact that the subject will focus on that aspect of a situation that is perceived to be most immediately threatening, accounts for these response differences. Third, according to Spielberger (1983), persons with high trait anxiety will exhibit elevated state anxiety more frequently than low trait anxiety individuals since they perceive a wider range of situations as threatening. Thus, it may be expected that high anxiety persons would evidence more emotionality, and therefore, more responsivity to threatening situations.

Giesen and Rollison (1980) as a case in point, found significant differences between high and low anxiety subjects in the magnitude of response differences between responses to crime related and unrelated stimuli. In their study, subjects were grouped according to reported trait anxiety, using a self report anxiety scale, prior to participating in a mock crime or a neutral activity. Subjects were then administered a Guilty Knowledge PDD exam. The results were seen to indicate that in addition to differences in overall responsivity, there were differences in the responses to relevant and nonrelevant stimuli. During stressful (guilty condition) situations, high anxiety individuals, despite being more responsive overall, were more differentially responsive than low anxiety individuals. Despite methodological differences, CQT subjects can be expected to respond similarly.

In the CQT, it is presumed that there is a significant consequence for the subject if he or she is found to be lying, and this consequence creates an emotionally charged situation that is likely to harbor significant stress. Thus, the guilty subject who is more concerned about the consequence of lying to the relevant question, experiences heightened emotionality or stress which elicits increased responding to the relevant questions and less responding to the control questions. The innocent subject experiences heightened emotionality or stress associated with the control questions. This emotionality has the similar effect of eliciting increased responding to the control questions and less to the relevant questions. Of course, for the innocent individual, the association of stress with the control question stems from the examiner's highlighting of the antisocial nature of the behavior referred to in the control questions.

Labile individuals and individuals high in state and trait anxiety have generally been found to be more responsive than stabile and low anxiety subjects (Bull & Gale, 1973; Shell et al., 1988; Gieson & Rollison, 1980;). Since previous research examining individual differences in lability has not looked at their role in the PDD, the current study is designed to examine the role of individual differences in electrodermal lability on electrodermal detection of deception. Additionally, since anxiety is seen to play a major role in the PDD (Gieson & Rollison, 1980), the current study is also designed to examine the effect of trait anxiety on the electrodermal detection of deception.

Method

Subjects

The subjects were volunteers from the population of U.S. Army trainees at Fort McClellan, Alabama. Prior experience with polygraph examinations was not evaluated as a condition for participation in this study. Only males were used in the study because there was an insufficient number of female recruits available at the time to allow a random assignment to comparable groups. Eighty-two, native English speaking, males appeared for participation in the study. Two subjects did not participate due to illness, and data from 5 of the 80 remaining subjects were omitted from analysis due to computer malfunctions. Data from 75 males (mean age = 23.8, SD = 6.7 years, range = 19-42) were analyzed.

Examiners

One polygraph examiner, trained by the Department of Defense Polygraph Institute (DoDPI), conducted all PDD examinations in the study. This examiner was certified as a PDD examiner by the Department of the Army. The examiner, at the time of the study, had served as an army PDD examiner for approximately 7 years. Two additional PDD examiners served as blind, independent data scorers. One scorer was an instructor at the DoDPI and also a

special agent for the U.S. Army Criminal Investigation Division. The second scorer was a member of the Defense Investigative Service, located in Atlanta, Georgia. Both of the data scorers had over 10 years experience as PDD examiners.

Apparatus

A Sensor-Medics Dynograph (Anaheim, CA) Model R-612 was used to collect the data. The dynograph was equipped with two pneumograph channels (Model 9863B), one Galvanic Skin Conductance (GSC) channel (Model 9844), and one cardiac channel (Voltage/Pulse/Pressure coupler, Model 9853C). The GSC finger electrodes were Sensor-Medics, silver-silver chloride electrodes which were placed on the index and third fingers of the left hand. A constant voltage of .5 VDC was applied across the electrodes and a .05 Molar NaCl solution suspended in Unibase cream served as the electrolyte. The skin conductance electrodes were attached to the Sensor-Medics Dynograph via the GSC channel. Continuous occlusionary blood pressure was recorded using a standard medical blood pressure cuff, pump bulb for inflation purposes, and a sphygmomanometer. The blood pressure cuff was placed around the upper portion of the right arm, between shoulder and elbow. The blood pressure cuff was attached to the Sensor-Medics Dynograph via the cardiac channel. Two bellows type respiration transducers (Lafayette Instrument Company, Lafayette, Indiana) were placed around the subject at the thoracic area and abdomen. The respiratory transducers were attached to the Sensor-Medics Dynograph via the two pneumograph channels. All transducers were attached to the dynograph by cables provided by Sensor-Medics for the specific transducer.

A Grass (Model S10CTCM) Click Tone Control Module was used with Grass Audiometric Headphones (Model 10H2S) to provide auditory stimuli. The Sensor Medics Dynograph was connected to an IBM 386 Personal Computer which digitized the analog data using an analog to digital converter board provided as a part of the Dataq Instruments Corporation (Akron, Ohio) CODAS system. The electrodermal output from the dynograph was digitized at a sample rate of 100 Hz. The electrodermal channel was simultaneously and continuously displayed on the computer screen by the CODAS system. The digitized electrodermal response data was stored on computer disk for later analysis. The respiratory and cardiac channels were not digitized, but were continuously recorded and displayed by the Sensor-Medics dynograph on paper charts. Analysis of the digitized electrodermal data was performed using CODAS data analysis facilities. The paper charts were scored by the independent blind scorers.

Design

In order to avoid threats to validity due to nonrandom subject assignment, a common practice in research similar to the current study, is to form a pool of pretested subjects. From this pool of pretested subjects random assignments are made to

experimental groups. For the current study this was found to be unfeasible due to the limited availability of trainees and the extent that it would interfere with training schedules. Therefore, electrodermal lability was measured immediately prior to the PDD test session on the same day rather than on different days. This procedure was not expected to cause any difficulties involving the habituation procedure, since the novelty of the questions asked during the PDD tests would result in the recovery of any habituated response (response dishabituation). And differential responsivity was the main issue upon which the study was focused. Therefore, there is no reason to expect habituation to a tone to selectively effect differential responsivity during a subsequent PDD examination.

The PDD examination used in this study was similar to the Bi-Zone Comparison test developed by Backster, 1962. The Bi-Zone is an acceptable test when the situation arises where only one issue is to be addressed in the examination (Zone Comparison Test [ZCT] Summary Sheet, 1992). The PDD examination given in this study focused on one issue only, therefore, the intrusion of extraneous or secondary issues was avoided. Normally three control questions are used in the ZCT, but only two were used here in order to have equal numbers of relevants and controls. Only the responses occurring to the relevant and control questions were analyzed. In an initial formulation of the study, habituation to the relevant and control questions was to be examined. Therefore, five tests were administered to allow sufficient time for habituation of the SCR to occur (Kircher & Raskin, 1984). However, the data from only three tests were analyzed for this study for three reasons. First, three tests represent the typical number administered in the field. Second, for a number of the subjects the question order was varied due to experimenter error in the final two tests. Third, habituation of the SCR over the course of the test session was considered not within the scope of this paper and, therefore, not analyzed. The examination questions are shown in Appendix A.

Procedure

Upon arrival at the Institute, subjects were met and, as a group, were escorted to the briefing room. The purpose and procedure of the study were fully explained at the same time to all subjects tested that day (see Appendix B for the script used in greeting the subjects and Appendix C for the description and explanation given all subjects). Subjects were then asked to read and sign the consent documents shown in Appendix D. Upon completion of the introduction to the study and the signing of the necessary documents, each subject was required to complete the two parts of the State-Trait Anxiety Inventory (STAI), Form Y, and a Subject Demographic form. Appendix E contains examples of the STAI, Form Y. Appendix F contains an example of the Subject Demographics form which was used to gather demographic information on subjects. At this point, subjects were randomly

assigned to either the guilty or innocent experimental group. Subjects who were assigned to the guilty group participated in a mock homicide crime scenario as described below. Subjects assigned to the innocent group spent an amount of time equivalent to that required for the conduct of the mock scenario in a room containing popular sports and news magazines and did not participate in the mock scenario. Subjects in the respective guilty and innocent groups will henceforth be referred to as guilty or innocent subjects.

A simulated office scene was constructed for the mock homicide in the main building of the DoDPI. The office contained a one-way mirrored window which allowed the scenario setter (SS) to observe the subject from the next room. The victim was a female manikin, placed in a sitting position at a desk in office surroundings prior to the arrival of each of the guilty subjects. The office contained a desk, computer table, chairs, and bookcases. The room also contained personal items such as a handbag containing money and makeup. These items were in view on the desk.

The SS escorted each designated guilty subject individually from the briefing room to the mock scenario scene. The SS used a script (see Appendix G) to inform the subject of the tasks that he was to perform. The subject was then directed to begin the mock crime. The purpose of the SS was to ensure that the subject did not become lost in the maze-like building and correctly performed the mock crime scenario. Upon completion of the mock crime scenario, the subject was escorted to the laboratory where the lability measurement procedure was begun.

The innocent subjects, on the other hand, were given no information regarding the mock crime scenario (see Appendix G). The innocent subjects were taken individually from the briefing room to a room separate from the programmed guilty subjects to avoid contamination and to spend the equivalent amount of time. After the waiting period, the innocent subject was taken to the laboratory where the experimental procedure was begun.

As each subject was taken to the laboratory he was informed that he would be given a polygraph examination regarding a homicide investigation. Each subject was instructed to cooperate fully with the examiner and to say that he had been informed by DoDPI staff that a homicide had been committed. If asked about the case by an examiner, he was to say that he knew nothing more about it.

Each subject was taken to a carpeted, 3.5 x 3.66 m partially sound attenuated-room adjoining the laboratory where the PDD examination was to take place. They were required to sit quietly in a chair facing a video camera while electrodermal recording electrodes and earphones were attached. The camera was then

adjusted to provide a clear view of the subject's face. The video camera was used to monitor, but not record, the subject's activity. The electrodes were attached to the Sensor-Medics Dynograph located in the next room by a cable passed through the wall via a shielded conduit. After the attachment of the electrodes the subject underwent a 5-minute rest period. The subject was instructed to sit still with eyes open and try to relax. The subject was also told that after a few minutes he would hear a series of tones over the earphones. He was instructed to relax, keep his movements to a minimum and listen to the tones. During this 5-minute rest period spontaneous electrodermal responses were recorded. After the rest period, the subject was presented a series of habituation stimuli consisting of 5-second, 70 dB 1000 Hz tones. The rise time of the tones was 25 ms with inter-tone intervals varying randomly among 20, 25, and 30 seconds. The habituation criterion was two consecutive trials with responses less than 0.025 μmhos (Levinson & Edelberg, 1985).

After completion of the 5-minute rest period and habituation session the subject was taken into the adjacent laboratory where the PDD examination was to be conducted. During transfer, the electrodermal electrodes remained attached. The subject was seated in a Lafayette adjustable-arm chair (Model no. 76871, Lafayette, IN) facing a blank wall. The subject was located to the left and approximately 2 feet in front of the Sensor-Medics Dynograph. The computer and its operator were located behind the subject and adjacent to the dynograph. During the examination the examiner operated the dynograph from a position behind the subject. The examination consisted of a stimulation test, a pretest, and an in-test. No interrogation was conducted. Immediately prior to the PDD examination and again immediately after the examination each subject was given a sheet of paper with a 100 mm black line drawn on it. The subject was then asked to make a mark on the line. The subject was told that the mark was to indicate his level of anxiety. The subject was also told that the poles of the line represented "no anxiety" and "the most anxiety that you could ever imagine." This procedure was to be used to assess anxiety levels before and after the examination. After completion of the experimental session, the subject was returned to a holding room where he was debriefed. Appendix H contains the form used in debriefing all subjects.

Data Reduction and Analysis

The electrodermal lability score was the number of trials required to reach the habituation criterion of two nonresponse trials. Habituation rate was used as the lability score because the SSCR data were contaminated by movement artifacts. During video monitoring of the 5-minute rest period, some subjects were observed to fall asleep and then suddenly awaken with a start. The sudden movements resulting from these actions produced extraneous electrodermal responses. On the other hand, the

frequent occurrence of the tonal stimulus used during habituation trials helped maintain the subject's wakefulness and prevented introduction of artifacts due to falling asleep.

Self-reported anxiety levels were measured using the STAI, Form Y. Scores from form 1 and form 2 of the questionnaire were assigned as state and trait anxiety scores respectively. Data from the 100 mm line were not analyzed since a number of subjects (33 subjects) failed to complete the requirement due to experimenter error.

Amplitude of the SCR was scored as the change in μSiemens from onset of the phasic change in conductance to its peak. The response was scored during a period beginning 1.5 sec following stimulus onset and ending 9.5 sec after stimulus onset. A scorable response was any response of .025 μSiemens conductance or greater (Levinson & Edelburg, 1985). Any response less than .025 μSiemens was assigned a value of 0 (Schell et al., 1988).

All test evaluations were done by two independent scorers blind to the subject's identification and group assignment. The scorers evaluated the paper charts produced by the dynograph, using the standard 3-position scale (Zone Comparison Test [ZCT] Summary Sheet, 1992). The paper charts contained tracings of four channels (two respiratory, one skin conductance, and one cardiac).

Subject classification was in response to the relationship between SCR amplitudes occurring to the relevant and control questions. Subjects were first classified as deception indicated (DI), no deception indicated (NDI), and no response (NR) based on a variation of a scoring method proposed by Backster (1962) for field polygraph examiners. This method was selected because the CQT used in the current study was similar to Backster's Bi-Zone Comparison test (Backster, 1962). In addition, the most widely used method for scoring the CQT is the numerical scoring method. This method utilizes the combined numerical scores (subjective scores) for each test that were assigned to each of the three components. Once a final score is achieved by summing the scores for each test, a decision is made using a decision algorithm. The decision algorithm used by most examiners for the ZCT is not intended to provide a decision based on the scores from only one component unless the scores to all other components were individually zero or summed to zero. Since the scope of this study was limited to an evaluation of only one component (the SCR) in the decision process, a modified scoring approach was used. This approach uses the actual amplitude values of the responses themselves rather than the subjective scores assigned by an examiner using a scoring scheme. The use of amplitude values is seen as more desirable for research purposes (Podlesny, & Raskin, 1977).

The analysis was implemented by summing the relevant question and the control question SCR amplitudes separately at each spot (spot 1 consisted of questions 4 and 5; spot 2 consisted of questions 6 and 7). If the total amplitude of the SCR to the relevant question was greater than or equal to the control question (except when all four response amplitudes equal zero) the total for the corresponding control question at either spot 1 or spot 2, the subject was classified as DI. On the other hand, if the total amplitude of the SCR to the control question was greater than the total for the corresponding relevant question at both spot 1 and spot 2, the subject was classified as NDI. The NR classification was used only when response amplitudes to all four questions were equal to zero. If the response amplitudes at one spot equaled zero then the other spot was used.

For purposes of data analysis, the response data from the 75 subjects were divided into two groups using a median split which resulted in the following numbers of subjects in each group: (a) labile group, with 36 subjects; stabile group, with 39 subjects; (b) trait anxiety group, with 39 high and 36 low anxiety subjects; and (c) state anxiety group with 40 high and 35 low anxiety subjects. Guilty and innocent groups had 35 and 40 subjects respectively. The guilty group had 17 labile and 19 stabile. The innocent group had 21 labile and 18 stabile subjects.

Results

Subjects classified as DI or NDI were considered correctly classified when the classification corresponded to subject programming. When the assigned classification did not correspond to subject programming, the subject was considered incorrectly classified. The proportion of subjects correctly classified (49%) was not significantly different from the proportion of subjects incorrectly classified (45%; $z = 1.347$, $p > .05$, two-tailed test). Five percent of the subjects had no measurable electrodermal responses and were not included in the analyses. Table 1 shows the numbers of correctly classified guilty and innocent subjects. The proportion of correctly classified subjects did not differ significantly ($z = 1.728$, $p > .05$, two-tailed test) between guilty and innocent subjects. Subsequent analyses were conducted on groups collapsed over guilt and innocence since no significant differences were found between guilty and innocent subjects. The agreement between blind scorers was analyzed using the Kappa statistic for multiple ratings (Fleiss, 1981), and found to be significantly greater than chance (total agreement = 94.1%, kappa = .856, $p < .05$).

Table 1
SCR Amplitude based Classification of Guilty and Innocent Subjects

	Classification			
Condition	Correct	Incorrect	No Response	N
Guilty	21	11	3	35
Innocent	16	23	1	40

Electrodermal Lability

As can be seen in Table 2, based on the numbers of subjects correctly classified, there were no significant differences between labile and stabile subjects in correctness of classifications (X^2 = .392, df = 1, p > .05). There were also no significant differences between labile and stabile groups for decisions (X^2 = .903, df = 3, p > .05). Electrodermal lability scores ranged from 0 to 24, M = 4.99, SD = 5.80.

Table 2
SCR Amplitude based Classification and Decision Accuracy of Labile and Stabile Subjects

	Classification					
Lability	Correct		Incorrect		No Response	N
Labile	23		12		1	36
Stabile	20		16		3	39
	Decision Accuracy					
	FP	TP	FN	TN	No Response	N
Labile	9	13	3	10	1	36
Stabile	12	11	4	9	3	39

Note. In this and subsequent tables, where present, FP = false positive; TP = true positive; FN = false negative; TN = true negative.

Decisions attributed to the two independent scorers were based on scores assigned each subject resulting from the independent scorers evaluation of the paper charts. The result of an analysis of scorer decisions indicates that lability was not a

factor in the determination of the numbers of correct and incorrect decisions (X^2 = 1.866, df = 1, p > .05 for scorer 1; X^2 = 1.845, df = 1, p > .05 for scorer 2). The analysis of accuracy of the decisions derived from the scores of both blind scorers also resulted in the finding of nonsignificant differences between labile and stabile subjects (X^2 = 5.753, df = 4, p > .05 for scorer 1 and X^2 = 3.188, df = 4, p > .05 for scorer 2). Table 3 shows the number of subjects in the different categories of correctnesss of classification and in the categories of decision accuracy types. The proportion of subjects correctly classified by both examiners using the three-categories of classification (DI, NDI, and inconclusive), was not significantly above chance when inconclusives were excluded (Chance = 50%; z = -.122, p > .05 for scorer 1; z = 0.245, p > .05 for scorer 2, one-tailed tests).

Table 3
Classification and Decision Accuracy based on Examiner Scores Assigned Labile and Stabile Subjects

	Classification		
Lability	Correct	Incorrect	Inconclusive	N
	Scorer 1			
Labile	16	13	7	36
Stabile	21	8	10	39
	Scorer 2			
Labile	17	10	9	36
Stabile	22	6	11	39

	Decision Accuracy					
	FP	TP	FN	TN	Inconclusive	N
	Scorer 1					
Labile	7	2	6	14	7	36
Stabile	1	3	5	19	11	39
	Scorer 2					
Labile	9	5	1	12	9	36
Stabile	4	8	2	14	11	39

Anxiety

Table 4 shows the number of subjects in each of the correctness classifications and decision accuracy types based on SCR amplitudes for the different levels of anxiety. No significance differences were found between high and low levels of state or trait anxiety (X^2 = .244, df = 1, p > .05, for state anxiety; X^2 = .0986, df = 1, p > .05 for trait anxiety). The differences in SCR based decision accuracy shown in Table 4, between high and low levels of state and trait anxiety, were not significant (X^2 = 1.035, df = 3, p > .05 for state anxiety; X^2 = 1.718, df = 3, p > .05 for trait anxiety).

Table 4
SCR Amplitude based Classification and Decision Accuracy of High and Low State and Trait Anxiety Subjects

	Classification				
Anxiety Type	Correct	Incorrect		No Response	N
State					
High	22	16		2	40
Low	21	12		2	35
Trait					
High	18	20		1	39
Low	21	12		3	36
	Decision Accuracy				
	FP	TP	FN	TN	No Response	N
State						
High	11	13	5	9	2	40
Low	10	12	2	9	2	35
Trait						
High	15	9	5	9	1	39
Low	7	13	5	8	3	36

The differences between the number of correct and incorrect decisions based on the scores assigned by the blind scorers for the two levels of state and trait anxiety were found to be nonsignificant (for scorer 1, X^2 = .070, df = 2, p > .05, state anxiety, and X^2 = .111, df = 2, p > .05, trait anxiety; for scorer 2, X^2 = 2.133, df = 2, p > .05, state anxiety and X^2 = .111, df = 2, p > .05, trait anxiety). In addition, differences in the accuracy of different types of decisions based on the

scores assigned by the blind scorers for the different levels of state and trait anxiety were found to be nonsignificant (for scorer 1, X^2 = 2.286, df = 4. p > .05, state anxiety and X^2 = 3.492, df = 4, p > .05, trait anxiety; for scorer 2, X^2 = 2.133, df = 4, p > .05, state anxiety and X^2 = 3.462, df = 4, p > .05, trait anxiety). Table 5 shows the numbers of correctly and incorrectly classified subjects, and the accuracy of the different types of decisions for examiner 1. Table 6 shows the numbers of correctly and incorrectly classified subjects, and the accuracy of the different types of decisions for examiner 2.

Table 5
Classification and Decision Accuracy based on Scores Assigned State and Trait Anxiety Subjects by Blind Scorer 1

	Classification			
Anxiety Type	Correct	Incorrect	Inconclusive	N
State				
High	20	11	9	40
Low	18	10	7	35
Trait				
High	21	10	8	39
Low	18	10	8	36

	Decision Accuracy					
	FP	TP	FN	TN	Inconclusive	N
State						
High	3	2	8	18	9	40
Low	5	4	5	14	7	35
Trait						
High	6	3	4	18	8	39
Low	4	3	6	15	8	36

Analysis comparing the normative data provided for the STAI scale and scores obtained for the subjects in this study was conducted to determine if the study sample was representative. Table 7 shows the mean anxiety scores for the normative data for the anxiety scales and the study subjects. Trait anxiety scores and state anxiety scores ranged from 20 to 63. As can be seen in Table 7, the self reported state anxiety scores of the study subjects were significantly lower than the normative scores for military recruits.

Table 6
Classification and Decision Accuracy based on Scores Assigned State and Trait Anxiety Subjects by Blind Scorer 2

	Classification			
Anxiety Type	Correct	Incorrect	Inconclusive	N
State				
High	20	11	9	40
Low	18	10	7	35
Trait				
High	21	10	8	39
Low	18	10	8	36

	Decision Accuracy					
	FP	TP	FN	TN	Inconclusive	N
State						
High	3	2	8	18	9	40
Low	5	4	5	14	7	35
Trait						
High	6	3	4	18	8	39
Low	2	3	8	15	8	36

Table 7
STAI-Y Scale Means and Standard Deviations from the Norms and from the Study Subjects

	STAI Norms				
Anxiety Type	Study Subjects	Military Recruits	t	df	p
State Anxiety					
M	32.08*	44.05*	-2.45	1966	.00
SD	8.70	12.18			
N	75	1,893			
Trait Anxiety					
M	34.39	37.64	-.91	1966	.19
SD	9.13	9.51			
N	75	1,893			

Note. * Indicates a significant difference.

A correlational analysis indicated the absence of a significant relationship between lability scores and anxiety scores [$r(75) = .223$, $p > .05$ for lability and trait anxiety, and $r(75) = .075$, $p > .05$ for lability and state anxiety]. Additionally, a correlational analysis was used to examine the relationship of both lability and anxiety to the difference between mean relative SCR values for relevant and control questions. No significant relationship was found [$r(75) = -.065$, $p > .05$ for lability; $r(75) = -.115$, $p > .05$ for state anxiety, and $r(75) = .068$, $p > .05$ for trait anxiety].

Discussion

Based on the results of this study, electrodermal lability and self-reported levels of anxiety do not affect differential responding sufficiently to influence the outcome of a PDD examination.

The lack of significant relationships between electrodermal lability and detection raises questions regarding the extent to which electrodermal lability is an underlying individual difference trait that is manifested consistently. It also raises the question of whether or not the attentional requirements of a PDD examination are such that individual differences in lability will appear. The overall conclusion of much of the research on lability is that electrodermal lability reflects the ability to allocate information processing capacity to stimuli that require attending to (Schell et al, 1988; Katkin, 1975). The most widely reported findings demonstrating that electrodermal lability influences performance have been of research that requires sustained vigilance such as in signal detection tasks (Hastrup, 1979). Therefore, it can be argued that the attention requirements of the PDD examination are such that they don't cause this individual difference trait to be manifested. It is possible that the examination does not require sustained vigilance behavior, but instead requires intermittent vigilance behavior which is focused only when the subject is asked the critical questions. Frequently, subjects are observed in laboratory PDD examinations showing drowsiness between askings of the test questions. Most of the subjects in this study reported having had very little sleep and rest over the course of the 2 weeks prior to testing and showed signs of drowsiness. This lack of rest may have resulted in a level of fatigue that could have affected responsiveness by depressing attention. Demanding stimulus and environmental conditions can be expected to influence the appearance of certain individual differences that may have a determining influence on how the individual handles the environment. Task demands may, therefore, differ sufficiently between PDD examinations and signal detection tasks that the necessary conditions for differences in lability to be evident may not exist. Therefore, underlying individual difference

dimensions such as lability which seems to be required in tasks of long duration and sustained vigilance (Vossel & Rosman, 1984) may not result in behavioral differences in every type of situation, particularly when the task demands are quite different.

Three additional factors deserve consideration in a discussion of the results reported here. The first is a concept stemming from the work of Lacey (1950). Lacey suggested that people differ in their typical response to stress. One person may be a skin conductance responder, and another may be a cardiac responder. This phenomenon is known as individual response stereotypy. Stereotypy may account for the lack of relationship between self-report and physiological measures of anxiety (Giesen & Rollison, 1980). Several studies in which reports of relationships between self-report and physiological indices of responsivity used self-report indices that took into consideration individual response stereotypy. These researchers preselected subjects in terms of their typical response to stress and then subjected them to stressful situations. Giesen and Rollison (1980) and Lykken (1972) used the Lykken Activity Preference Questionnaire which reflects self-reported anxiety and levels of autonomic responsivity to select subjects. Giesen et al., also used the Perceived Somatic Reactions to Stress Questionnaire developed by Stern and Higgins (1967) as an additional index. In the study reported here, subjects were not preselected on the basis of a typical response to stress. The research in the present study was focused specifically on the effects of anxiety over a cross section of the population. Therefore, due to the potential mix of different kinds of responders, stereotypy may have played a roll in the outcome of this study.

A second factor has to do with the norms reported by the STAI. As can be seen in Table 7, the mean state anxiety scores of the study subjects are significantly less than the mean provided as a norm for the STAI state anxiety scale. This comparison suggests that the subject sample used in this study appears to be nontypical in this respect. Therefore, it is possible that sufficient arousal from anxiety to produce differential responding within and between these lower anxiety subjects did not occur.

The third factor is the effectiveness of the mock crime scenario. As an experimental manipulation, the mock crime scenario serves to provide the subject with an opportunity to be deceptive about some recent activity. The scenario, therefore, must require sufficient emotional involvement of the subjects in order to arouse concern at being detected when being deceptive about the scenario. If the subject did not experience any concern or threat at being caught lying about events in the mock scenario then it seems that any consequences would be unclear. If the mock

scenario does not provide a clear consequence for lying then the scenario is likely not to be effective. In the absence of any threat to the subject, detection may not be easy.

Despite the nonsignificance of the results, they indicate that researchers need to give serious consideration to the study of individual differences. Consideration needs to be given to factors such as whether or not individual differences can be observed under all kinds of conditions, or whether or not individual differences require specific conditions for observation. This kind of research can provide answers to questions about how individual differences can affect PDD validity and reliability.

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Appendix A

Test Questions

Question Type	Number	Question
Irrelevant:	1.	Are we now in Alabama?
	1a.	Are the lights on in this room?
	1b.	Is this the year 1993?
	1c.	Is your first name _____?
Sacrifice Relevant:	2.	Regarding striking that female dummy on the head, do you intend to tell me the truth?
Symptomatic:	3.	Are you afraid I will ask you a surprise question?
Control:	4.	Prior to this year did you ever lie to someone who trusted you?
Relevant:	5.	Did you strike that female dummy on the head?
Control:	6.	Before 1993, did you ever lie to someone in authority?
Relevant:	7.	Do you know for sure who struck that female dummy on the head?

Appendix B

Script for Greeting Subjects

FOR "INNOCENT" AND "GUILTY" GROUPS

"Hi, my name is_____ and welcome to the Department of Defense Polygraph Institute. This may be the first time you have been to the Institute so we would like to provide you with some information concerning the purpose for your being here today. We hope that you will find your time here to be enjoyable and educational.

Allow me to start by explaining what a polygraph examination is--a polygraph examination is a process of recording physiological information and using that information to determine whether or not somebody is being truthful when asked questions about a particular subject or incident.

We have two missions here at DoDPI. To begin with, we are one of only two schools in the Federal Government that trains polygraph examiners. We train all of the DOD polygraph examiners and most of the other federal agencies, such as the FBI, DEA, Secret Service, etc. The other part of our mission here is to conduct research. In this capacity we test all the new and existing polygraph procedures for accuracy and utility. It is in that capacity that we are asking for your assistance today.

One of the ways that we test a particular procedure for accuracy is to ask people like you to commit a make believe crime. The particular crime that we commit during this experiment, is a make believe murder. We then give you a polygraph test to see if we can determine that you did commit that crime. Of course if everyone we test is guilty, then we would not have a very good experiment, so we also test some people who did not commit the mock crime and are therefore "innocent". Today we may make you part of an "innocent" group or part of a "guilty" group. In either case it is very important that you do exactly as instructed before, during, and after your polygraph examination, or we will not have a good experiment.

As part of the project today, your polygraph examinations may be videotaped. These tapes will not be released outside of the Polygraph Institute.

I would like to assure you in advance that we will not ask you any embarrassing questions or make you do anything that you are uncomfortable doing. Your participation is completely voluntary. If you have any questions, please feel free to ask any of the DoDPI staff.

Appendix C

To You, the Participant

Welcome to the Department of Defense Polygraph Institute. This may be the first time you have been at the Institute so we would like to provide you with some information concerning the purpose for your being here today. We hope that you will enjoy the task we will give you today. Your participation is completely voluntary. If you have any questions, please feel free to ask the investigator who greets you today.

Part A: EXPLANATION

1. PROJECT TITLE: Effects of Electrodermal Lability and Anxiety on the Detection of Deception with the Control Question Technique. This project is being conducted by the DoD Polygraph Institute, Fort McClellan, Alabama.

2. PRINCIPAL INVESTIGATOR: Dr. Eben M. Ingram, Research Psychologist, DoDPI.

3. DISCUSSION: Congress has directed the Department of Defense to conduct research to determine the effectiveness of the polygraph. Part of this mandate requires that new and existing polygraph procedures be tested for accuracy and reliability. You are being asked to volunteer for an investigation that will help us investigate the accuracy of this specific polygraph test. You may or may not be asked to be involved in a mock homicide scenario. If you are asked to participate in a scenario, then you will be asked to follow certain instructions from a staff member. After following those instructions, you will be asked to take a polygraph examination. If you are not asked to be part of any scenario, then you will be taking a brief polygraph examination regarding a matter in which you will obviously have no direct involvement.

4. DISCOMFORTS: Some people find it difficult to sit still for several minutes at a time during the polygraph test, while psychophysiological measurements are being made from the body. Part of the polygraph process requires the wearing of an inflated blood pressure cuff, which some people find moderately uncomfortable. However the actual polygraph tests run for approximately 5 minutes. The total length of time required for your participation in this investigation will be approximately 45 minutes to 1 1/2 hours, however, you may be here at the Institute for the entire day.

5. VIDEOTAPING: All examinations conducted during this project may be videotaped using wall and ceiling mounted video cameras and commercial videotape recorders. The tapes collected, will be maintained until completion of the operational and data analysis

portions of this project. At that time the videotapes will be made available for re-use by research and instruction divisions.

6. RISKS: There are no known risks involved in this study.

7. CONFIDENTIALITY OF RECORDS: Except for admissions of an actual crime of a serious nature or violations of national security, all of the information that you will tell the examiners is confidential information and will not be revealed to anyone not directly involved in the research. Admissions of any serious crimes or breaches of national security will, however, be reported to the proper authorities for investigation. In the absence of any such admissions, all videotapes and paper documents associated with your examination will be used for research purposes only. Members of the U.S. Army Surgeon Generals's Human Subjects Research Review Board may inspect the records of the research in their capacity as reviewing officials, but your identity will be kept confidential.

8. YOUR RIGHTS: You have the right to ask any questions about any aspect of your participation in the study. If any problems arise at any time in conjunction with your involvement in the study, or if you have been injured in any way as a result of the study, the person to contact is the chief of the research division of the Defense Polygraph Institute. In the event that you do have questions or any of the above has occurred please contact Dr. William Yankee at (205) 848-3803. Should any question arise concerning study related injury, you may contact the Director of the Noble Army Community Hospital, Fort McClellan, Alabama, 36205, telephone number (205) 848-2200.

9. VOLUNTARY PARTICIPATION: Your participation in this study is completely voluntary. If you would prefer not to participate, do not volunteer for it! Even if you decide to participate in the study, you may discontinue at any time without penalty or loss of benefits to which you are entitled. Should you decide not to participate please inform someone on the staff at the Defense Polygraph Institute, or if it occurs during the polygraph examination itself, inform the examiner and you will be released and returned to your unit.

10. ADDITIONAL COMMENTS: Regardless of whether or not you participate in the simulated crime, it is very important that you do not tell the examiner. Additionally, it is equally important that you do not discuss your experiences in the polygraph test with your fellow research participants. If either of the above occurs, you will be withdrawn from the study and returned to your unit.

Appendix D

Informed Consent Affidavit

1. This form is affected by the Privacy Act of 1974. AUTHORITY: 10 USC 3012, 44 USC 3101 and 10 USC 1071-1087.

2. PRINCIPAL PURPOSE: To document voluntary participation in the Defense Polygraph Institute Research Program. Your name will be used for identification.

3. ROUTINE USES: The name will be used for identification and locating purposes. Information may be furnished to Federal, State, and local agencies.

4. MANDATORY OR VOLUNTARY DISCLOSURE: Your signature is necessary if you want to be included in this research. If you do not sign, you will not be able to serve in this study and you will be returned immediately to your Unit.

_____ _____

Signature Date

PERSONAL STATEMENT

I, _____,being at least 19 years old, do hereby volunteer to participate in a research study entitled_____

_____

being conducted by the Department of Defense Polygraph Institute (DoDPI) at Fort McClellan, under the direction of Dr. Eben M.Ingram.

1._____I understand that I am participating in a research study to examine several measures and techniques some of which are currently employed in criminal polygraph situations.

2._____I am aware that I will be spending between four (4) and eight (8) hours at DoDPI and that during this time I may be asked to participate in the commission of a simulated "homicide."

3._____I understand that as a part of this study, I will be taking a polygraph examination, during which I will be asked to sit still for several minutes at a time during the polygraph test, while psychophysiological measurements are being recorded from my body.

4._____I understand that there are no known dangers or risks arising as the result of my participation in this study.

5._____I understand that part of the polygraph process requires the wearing of an inflated blood pressure cuff, which some people find moderately uncomfortable.

6._____I understand that I will be videotaped during the polygraph examination and that the videotape will be maintained for additional study.

7._____I understand that I will receive no reward or benefit of any kind as the result of my participation in this study.

8._____My participation, the nature, duration and purpose of the investigation and the methods by which it is to be conducted, have been thoroughly explained to me. I have been given the opportunity to ask questions concerning this study, and any such question has been answered to my satisfaction.

9._____I understand that I may terminate my involvement in this study at any time and for any reason.

10._____Should I have any concerns or complaints concerning this study, I understand that I may contact Dr. Eben M. Ingram, or Dr. William Yankee at (205) 848-3803.

11._____Should any question arise concerning my rights relating to study related injury, I should contact the Director of the Noble Army Community Hospital, Fort McClellan, Alabama, 36205, telephone number (205) 848-2200.

12._____My participation, the nature, duration and purpose of the study and the methods by which it is to be conducted have been thoroughly explained to me. I have been given the opportunity to ask questions concerning this study, and any such questions have been answered to my satisfaction.

_____ _____

Print your name here Date

_____

Signature

_____ _____

Signature of Witness Date

SELF-EVALUATION QUESTIONNAIRE

Developed by Charles D. Spielberger
in collaboration with
R. L. Gorsuch, R. Lushene, P. R. Vagg, and G. A. Jacobs

STAI Form Y-1

Name _____ Date _____ S ____

Age _____ Sex: M ____ F ____ T ____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel *right* now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	①	②	③	④
2. I feel secure	①	②	③	④
3. I am tense	①	②	③	④
4. I feel strained	①	②	③	④
5. I feel at ease	①	②	③	④
6. I feel upset	①	②	③	④
7. I am presently worrying over possible misfortunes	①	②	③	④
8. I feel satisfied	①	②	③	④
9. I feel frightened	①	②	③	④
10. I feel comfortable	①	②	③	④
11. I feel self-confident	①	②	③	④
12. I feel nervous	①	②	③	④
13. I am jittery	①	②	③	④
14. I feel indecisive	①	②	③	④
15. I am relaxed	①	②	③	④
16. I feel content	①	②	③	④
17. I am worried	①	②	③	④
18. I feel confused	①	②	③	④
19. I feel steady	①	②	③	④
20. I feel pleasant	①	②	③	④

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SELF-EVALUATION QUESTIONNAIRE

STAI Form Y-2

Name _____ Date _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
21. I feel pleasant	①	②	③	④
22. I feel nervous and restless	①	②	③	④
23. I feel satisfied with myself	①	②	③	④
24. I wish I could be as happy as others seem to be	①	②	③	④
25. I feel like a failure	①	②	③	④
26. I feel rested	①	②	③	④
27. I am "calm, cool, and collected"	①	②	③	④
28. I feel that difficulties are piling up so that I cannot overcome them	①	②	③	④
29. I worry too much over something that really doesn't matter	①	②	③	④
30. I am happy	①	②	③	④
31. I have disturbing thoughts	①	②	③	④
32. I lack self-confidence	①	②	③	④
33. I feel secure	①	②	③	④
34. I make decisions easily	①	②	③	④
35. I feel inadequate	①	②	③	④
36. I am content	①	②	③	④
37. Some unimportant thought runs through my mind and bothers me	①	②	③	④
38. I take disappointments so keenly that I can't put them out of my mind	①	②	③	④
39. I am a steady person	①	②	③	④
40. I get in a state of tension or turmoil as I think over my recent concerns and interests	①	②	③	④

Appendix F

Subject Demographics

Social Security Number# _____Date____/____/____

Age _____

Race:1 - African-American 2 - Caucasian 3 - Hispanic
4 - Asian 5 - Native American
6 - Other (Specify) _____

Education Level: Check the highest level an indicate the number of years completed and degree awarded if appropriate.

( ) High School _____
( ) Technical/Vocational _____
( ) College _____Degree _____
( ) Post-Undergraduate _____Degree _____

Family Background: (Age, POB, and occupation of each)

Mother_____
Father_____
Sister(s)_____
Brother(s)_____
Spouse_____
Children_____

Military Service: Week of training?_____

Health
How would you describe your present health status and physical status?
( ) Excellent( ) Good( ) Fair( ) Poor

Are you presently under a physician's care and are you taking any medication? ( ) No ( ) Yes

If yes, for what condition? _____

What is the medication? _____

Pain/Discomfort today?

1 - None 2 - Not Bad 3 - Mild 4 - Moderate
5 - Bad 6 - Very Bad

Reason _____

Physical Fitness:
Prior to coming to Ft. McClellan, did you participate in regular fitness/exercise?
( ) Yes ( ) No

Sleep:How much sleep did you get last night?_____

Arrest Record: Offense, Date, Type: Civ/Mil.

Leisure Activities:_____

Substance Use: Used within the last 48 hours.

Narcotics/Drugs_____
Caffeine_____
Alcohol_____
Tobacco_____

Physician Prescribed Medications:
Type of medication_____
Condition for which Medication prescribed_____
Most recent use_____

Comments:

Appendix G

SCRIPT FOR SCENARIO SETTER

PART 1

FOR "INNOCENT" GROUP

Today there was a mock crime committed. The crime was a homicide. Since you did not have any part in that crime, you obviously do not know any of the details of that crime. In a little while a polygraph examiner will be asking you to take a polygraph examination. I would like you to go with him and take the test. He may ask you what you know about the "Homicide." Simply tell him the truth. Tell him that you were told that a homicide had been committed but that you have no involvement in the crime and that you have no knowledge of any of the details. In every other way I would like you to be as cooperative as possible and do your best to follow all the examiner's instructions.

If you have any questions or feel uncomfortable about anything, tell the examiner that you would like to talk to me and I will do my best to assist. Thank you again for your assistance.

SCRIPT FOR SCENARIO SETTER

PART 2

FOR "GUILTY" GROUP

Today YOU are going to commit a murder. What I would like you to do, is to sort of psychologically place yourself in the position of somebody going into an office to steal something. The "victim" is going to turn and see you causing you to kill the "victim." It is going to be very important that you follow all my instructions to the letter, because you must remember what you did, for you will be tested later. Are their any questions before we go to the room?

THE SUBJECT AND SCENARIO SETTER GO TO THE CRIME SCENE

This is office #2. See that woman in the chair at the desk? (pointing to the female manikin, placed in a chair prior to the arrival of the programmed guilty subjects). There are your victim's personal items" (SS points out jewelry, make-up, handbags, and other items).

Now, when I go into the other room and signal you, I want you to pretend that you have entered the room to commit a theft. See that ring on the woman's finger? See her purse on the floor? What are you going to steal? Wait a minute, the woman is turning!

Quick, take that bat from the corner of the room. Strike the manikin over the head with the bat hard as you can.
Now check her and see if she is dead (The S, walks over to the victim, "checks the pulse" and informs the SS that his actions "killed" the woman). "Now I want you to hide the bat under the desk" (Subject complies). It's time to leave (SS and subject depart the crime scene).

SS and subject go to a different room where SS states; "Today you committed a homicide." "There were a number of things that you did in connection with that crime and a number of things that you should have observed in the crime scene."

The subject will then be told "In a little while a polygraph examiner will be asking you to take a polygraph examination. I would like you to go with her and take the test. She may ask you what you know about the "Homicide." Do not tell her anything about what you did today. Simply tell her that you were told that a homicide had been committed but that you have no involvement in the crime and that you have no knowledge of any of the details. In every other way I would like you to be as cooperative as possible and do your best to follow all the examiner's instructions, but DO NOT confess to having any knowledge or involvement in the crime.

If you have any questions or feel uncomfortable about anything, tell the examiner that you would like to talk to me and I will do my best to assist. Thank you again for your assistance.

Appendix H

Subject Debriefing

Now that you have completed your role in our research study, it is the desire of the entire project staff to take this opportunity to sincerely thank you for your help. Your work here today was more important than you may realize.

If the results of this study show that this procedure is useful, then we may be able to provide federal agencies and police departments with a new and highly accurate way to determine whether a person has knowledge or involvement in a criminal offense.

For those of you who actually committed a mock crime today, you are assured by the staff of this institute, that you in no way violated any rule or law. The mock crime was just that, pretend.

For those of you who committed no mock crime, your role was just as important, as no polygraph procedure is useful if it cannot identify the innocent as well as the guilty.

Regardless of your role, it is our hope that nobody involved in this study has made you uncomfortable in any way. If you do have questions or concerns please bring them to the attention of your briefer or to Dr. William Yankee, the Institute director.

Lastly, and most importantly, DO NOT discuss the details of this study with anyone else.

This is particularly important for those of you who have knowledge regarding our mock crime scenario. If you go back to your unit and tell other soldiers what happened in that crime scene, then they too will have GUILTY KNOWLEDGE. If one or more of those soldiers are subsequently asked to participate in this study as "innocent" people, the guilty knowledge that YOU gave them will cause false results and seriously damage this project.

Please sign this form in the space provided to indicate that you understand the instructions provided above.

_____
SIGNATURE OF SUBJECT

_____
SOCIAL SECURITY NUMBER