Cestaro, V. L. (1996). A comparison of accuracy rates between detection of deception examinations using the polygraph and the computer voice stress analyzer in a mock crime scenario. (Report No. DoDPI95-R-0004). Fort McClellan, AL: Department of Defense Polygraph Institute.

The present study made a comparison between the standard polygraph instrument and the computer voice stress analyzer (CVSA) in the detection of deception. A standard polygraph instrument examines changes in skin resistance, respiratory and cardiovascular activity to identify the act of deception. The CVSA is designed to identify the change of wavering in voice that could be related to the act of deception. Cestaro (1996) tested the standard polygraph instrument and the CVSA for identifying participants who provided deceptive responses after committing a mock crime.

A total of 120 people participated in the study. Half of them were assigned to the guilty group, and the other half were assigned to the innocent group. Participants in the guilty group were instructed to take$50 from a wallet in a wall locker, and then to deceive the examiner about taking the money in the interview. They were told that they could keep the money if they succeeded in deception, but they would lose the money if they failed in deception. Participants in the innocent group were given information about the crime, but did not participant in the mock crime. Half of participants from the guilty group and the innocent group took the interview with the standard polygraph instrument, and the other half took the interview with the CVSA. The polygraph results were judged by 2 administering examiners who conduced the interview and 3 blind evaluators, and the CVSA results were also judged by 2 administering examiners and 3 blind evaluators.

For the standard polygraph instrument, an overall accuracy rate was 57.2%, and for the CVSA, it was 52.2%. Neither 57.2% nor 52.2% significantly differed from the chance level accuracy of 50.0%. When the degree of agreement among examiners and evaluators was examined, it was higher than the chance level. For the standard polygraph instrument, examiners and evaluators agreed on 60% of the decisions, and for the CVSA, they agreed on 52% of the decisions. Therefore, it appears that the low accuracy rate in the detection of deception was due to the low sensitivity of a method rather than any particular characteristics about examiners or evaluators. It is probable that the mock crime scenario in the present study was not stressful enough to cause identifiable physiological changes. More research is needed to learn more about the amount of stress required for an instrument to detect the act of deception.