To Catch a Liar: A Signal Detection Analysis of Personality and Lie Detection[1]

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People lie. Age, gender, and a variety of other traits do not by themselves facilitate lie detection; so most people do not have an ability to consistently know when others lie. However, it seems that a select few are able to detect falsehoods. Examination of the literature reveals characteristics that correlate with lie detection accuracy as well as personality. The present study examined personality type (Myers-Briggs) to determine if the predicted ENTP personality would be best at detecting lies. Participants viewed nine videos of storytellers sharing true or false emotional stories and assessed truthfulness. A Signal Detection analysis of results supported the prediction that the closer to ENTP, the better a lie detector a person was. Implications of these findings are discussed.

Introduction

It is a fact; people lie. From small white lies that may spare someone's feelings, to a highly detailed fabrication, dishonesty is a part of human nature. Because lying has entwined itself within our social interactions, detection of deceitfulness has become highly valued. It seems most people have a hard time distinguishing a falsehood from a truth. Most people achieve 56.6% accuracy at detecting deception, which is considered a low score, based on the fact that 50% accuracy can be expected by chance alone (Mann, Vrij, & Bull, 2004). Numerous studies have been conducted searching for what makes one person better at detecting deception than others. Variables including; age, sex, education, and expertise have all been researched and show they do not help one's precision at lie detection (Aamondt, 2006; Bond & DePaulo, 2008; Ekman & O'Sullivan, 1991). Some studies have looked at specific character traits of a person and how accurate they were in lie detection. A significant correlation in accuracy has been found with only a few traits that were studied (Aamondt, 2006; DePaulo & Rosenthal, 1979; Geis & Moon, 1981). However, because of the relatively few studies examining personality traits as variables in lie detection, it is clear that more research is needed (Aamondt, 2006; Porter, et al., 2002).

In terms of general predictors of lie detection, Bond and DePaulo (2008) found that accuracy depended on several variables, including a person's age, education, expertise, confidence, and sex. In their study, the people who were required to decipher lies from truths were called judges, while people who did the lying were called senders. The main interests were between differences in judges and why the judges viewed some testimonials as truthful and others as falsehoods, as well as a sender's detectability. A sender's detectability was considered to be how truthful a sender was viewed when they were being truthful, and how dishonest a sender was viewed when they were being dishonest. Bond and DePaulo (2008) concluded that age, education, expertise, confidence, and sex were unrelated to determining whether someone was lying. Instead it was how truthful and honest a sender appeared or how dishonest and untrustworthy a sender appeared, that helped to increase a judge's accuracy.

It seems likely that how people behave outwardly might be a function of the perspectives they hold inwardly. In which case, it may be that aspects of a person's world-view might predict the effectiveness of a person's ability to lie successfully. While exploring this possibility, Geis and Moon (1981) and DePaulo and Rosenthal (1979) found that people who held Machiavellian (Mach) views were better liars, and were also harder to judge than the average person. People who were considered to be high-Machs all showed similar specific traits: Resistance to social

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influence, confidence, charm, cynicism, and they tended to be manipulative – usually coercing others to adapt to their objectives. Low-Machs, on the other hand, shared these characteristics: Empathy, dependence, and honesty – believing that morally correct behavior is most important. In order to determine who would be considered a high-Mach versus a low-Mach, the participants were given the Mach IV and V scale. People who scored 97 or higher out of 100 were considered to be high-Machs while people who scored below a 97 out of 100 were considered to be low-Machs. The results showed that high-Machs were more believable when being dishonest compared to lying low-Machs. In a related study, Kashy and DePaulo (1996) provided an explanation as to why those high in Machiavellianism are reported to be more liked than low-Machs. According to the authors, High-Machs appear more relaxed and confident while lying, which are two qualities that most people would likely attribute to honesty rather than deceit. Further research has shown that highly manipulative persons are more aware and accurate than most others when judging deception because they already have strong insight; they know what specific traits of dishonesty to look for (DePaulo & Rosenthal, 1979; Granhag, Andersson, Stromwall, & Hartwig, 2004).

Granhag, et al. (2004) and Hartwig, et al. (2004) found that criminals were much more accurate at lie detection than students and even prison personnel. In the research by Hartwig, et al. (2004) video footage was shown and participants (criminals and students) were asked to determine which actors were being deceptive and which actors were telling the truth. The explanation for criminal superiority in lie detection was based on the idea that criminals' environments allow them to perceive and gain more "insider" knowledge about deception than people outside these experiences. The criminals' performance in the task suggested that they were already familiar with specific signals that could indicate when someone was being dishonest. They could use learned multiple cues and patterns of cues to predict deceit. Porter (2002) claimed that most people rely on single clues rather than multiple cues in determining deceit from truth, which could explain why most people are not very accurate at lie detection.

Criminals are not the only groups who have demonstrated a talent for lie detection. For instance, teachers were shown to have an accuracy rate of 70% which is comparable to the accuracy rates of 64% and 73% for members of the Secret Service and the Central Intelligence Agency respectively (Ekman & O'Sullivan, 1991). Interestingly, professional lie catchers, such as law enforcement officials and federal parole officers were no better than the average college student at lie detection (Aamondt, 2006; Ekman & O'Sullivan, 1991). In fact, parole officers were found to perform worse than chance (Porter et al., 2000). One observation related to these findings was that police officers were more likely to rely on misconceptions about cues (e.g., averted gaze, nervousness) due to traditional police training techniques (Mann et al., 2004). Because age, sex, and education have shown no significant relationship with detecting deceit, and expertise has shown mixed results, it may be that skill in detecting deceit stems from specific personality traits. It is possible that certain personality characteristics are attracted to certain careers (e.g., Teaching, Secret Service, CIA, etc.) which results in higher proportions of certain types of people in these professions who are naturally better at detecting lies. The task then becomes to determine the aspects of a person's personality that best predict lie detection.

Aamondt (2006) looked at individual differences to see if and how they might be related to accuracy in detecting deception. Confidence, neuroticism, extraversion, and self-monitoring were all hypothesized to relate to lie detection. However, the only personality trait that correlated was self-monitoring. High self-monitors seemed to have the ability to establish and understand behaviors of others in their environment compared with low self-monitors. Although self-monitoring was the only trait to show a significant outcome in that particular study, not all characteristics of personality were examined. Given that certain groups of people (criminals, secret service, etc.) demonstrate relatively good lie detection, it is reasonable to hypothesize that attributes in addition to being manipulative and self-monitoring will be related to accuracy rates as well. A straightforward measure of basic personality traits and their relationship to lie detection seems warranted. To

this end, a personality assessment tool such as the Myers-Briggs Type Indicator (MBTI) may provide some direction with regard to the study of personality traits and accuracy at lie detection.

The MBTI uses a psychological assessment to help people discover and understand more about themselves. This assessment originated in the 1940s by Katherine Briggs and her daughter Isabel Myers, based off of a personality type theory developed by Swiss psychoanalyst Carl Jung (Baron, 1998). The applicant chooses between two possible responses, for approximately 100 questions. At the end of the assessment, the answers are categorized and the applicant is placed into 1 of 16 different preference categories. Based upon the applicant's preferences, 1 of 16 possible four letter codes is assigned (e.g., ENTP, ISFJ). Each letter in the combination represents a unique personality dimension and set of characteristics that describes elements of personality.

In order to predict what traits may be best suited for detecting lies, it is important to more closely examine the four dimensions of the assessment tool. The following descriptions are based on the work of Baron (1998). The first letter in an MBTI assessment (E or I) reflects where people prefer to focus their attention and what energizes them (Extraversion vs. Introversion). An Extravert (E) is considered to be more of a "people person" in that they prefer being with people and engaging in activities. Introverts (I) prefer to be alone with their thoughts and ideas. The second letter in an MBTI assessment (S or N) reflects what people take in and how people understand information. Those who pay attention to concrete information derived from their five senses prefer to operate in the "here" and "now" and are described as Sensing (S). Those who prefer to pay attention to their intuitions, or "gut feelings" are described as Intuitive (N). The third letter in an MBTI assessment (T or F) reflects how people prefer to evaluate information and make decisions. People who are practical and objective in their decision making are described as Thinking (T) types, whereas people who prefer to base their decisions on their own personal values are considered to be Feeling (F) types. Finally, the fourth letter in an MBTI assessment (J or P) reflects how people prefer to live their lives. Individuals who prefer to live in an organized, scheduled manner are

described as Judging (J) types, whereas people who prefer to be impulsive and flexible in life as described as Perceiving (P) types. Upon completing an MBTI assessment, the result is one specific combination of sixteen possible combinations of personality dimensions (Baron, 1998).

These four personality dimensions derived from the MBTI lend themselves to straightforward predictions with regard to lie detection accuracy. For example, a person who scores as highly extraverted prefers to interact with others, enjoys discussions, and getting to know people on a personal level. As Granhag et al. (2004) showed, more experience in social connections and having an understanding of social norms are important traits to have for a person to detect deception. Therefore, because extraverts prefer to focus their attention on others, it seems likely that this could make them more observant of deceit cues. Also, someone who scores as highly intuitive is speculative and open minded. Intuitive types look for patterns and have little trouble understanding abstract information. Research reveals that use of multiple cues and patterns of cues increase a person's ability to detect lies (Porter, et al., 2002). Therefore, the intuitive dimension seems a likely candidate for relating to lie-detection. Individuals who score high in the thinking domain prefer to analyze problems, are objective, and are usually convinced by logic. They are able to evaluate information based on consistencies while ignoring emotional or other potentially distracting cues to discriminating truth from falsehood. Finally, because lies are rarely simple falsehoods, a person who scores high on the perceiving domain may be better suited for lie detection than those who score high as judging types. This is because the thinking patterns of judging types may be too restrictive, which, when it comes to lie detection, would be disadvantageous. Based on these key characteristics, it is predicted that people who are classified with the preferences ENTP will do the best at detecting deception, while those classified as ISFJ (i.e., the exact opposite to ENTP) will perform the worst.

Method

Participants

The participants were 91 students (approximately equal numbers of females and

males) recruited from undergraduate general psychology courses. All 91 students received the Myers-Briggs Assessment and were assigned a 4-letter personality code based on their responses. Out of the 91 students, only 81 students participated in the lie-detection portion of the study. All participants received extra course credit for their participation.

Materials

The Myers-Briggs Type Inventory (MBTI) was used to classify students' personalities. The applicant chose between two opposing choices for each of the 97 items. At the end of the assessment, responses were categorized and the applicants' preferences were determined.

In order to detect deception, 17 short videos were recorded (16 experimental, 1 practice) from nine different actors (5 females, 4 males). Eight of the actors shared two emotional stories (one true, the other a lie) that were approximately 2-3 minutes in duration. One actor shared a story that served as the first (practice) video shown to all subjects. Data from this video were not included in any of the analyses.

Procedure

Two general psychology classes (Group 1 and Group 2) participated in the study. The videos were shown to each class on the same day, an hour apart. The study took place in the same classroom to control for possible environmental conditions. Participants were all given the same instructions to watch each video and assess whether they believed the person was telling the truth or telling a lie. All participants were asked to refrain from writing or making comments out loud to avoid possible biases as well as to increase the attention given to the videos. There was a delay of approximately one minute between each video clip to provide sufficient time for students to record their responses. Each data collection session took approximately 50 minutes.

To control for possible actor/actress effects, all participants viewed all of the story tellers. However, when one group saw an actor tell a truth, the other group saw the same actor telling a lie. The assignment of actors and stories to groups was random with the following constraints: (1) both groups watched 8 video clips containing two truthful males, two dishonest males, two truthful females, and two dishonest females; and (2) no actor was observed more than one time within a group.

Results

To determine the degree to which MBTI personality scores predicted lie detection accuracy, two modifications to the data were performed. First, MBTI scores were calculated to more accurately assess the degree to which participants matched the ENTP designation. Specifically, each dimension was converted to a percentage score based on the number of items in the category that matched the predicted designation. As a result, a perfect ENTP score would mean that all extraversion questions were answered in a manner consistent with the extraversion score (100% extraverted), as would be the case for questions in the intuitive dimension, the thinking dimension, and the perceiving dimension. In this way, a maximum possible score of 400 would mean that the student was a perfect ENTP, whereas a score of 0 would indicate a perfect ISFJ. Because the focus of the present study is on whether the ENTP personality is the ideal lie detector, MBTI scores were ordered and then the top and bottom 15% of the data were used. It is beyond the scope of the present study to make predictions regarding variations and combinations of the 14 intermediate MBTI classifications.

A second modification to the data was performed in order to capitalize on the robust nature of Signal Detection Theory (SDT). Specifically, to take into account the likely variations in response bias (i.e., a participant's willingness to identify a liar), accuracy scores were converted to the sensitivity measure, d' (d-prime) for analysis. As predicted, a positive correlation between MBTI score and lie detection was found, $r(25) = .362$, $p < .05$, 1-tailed. As participants scored closer to a perfect ENTP their lie detection accuracy improved.

Discussion

A typical finding is that most people are not very good lie detectors. Different factors such as age, sex, race, and even experience have been researched and have shown no correlation to lie-detection accuracy (Aamondt, 2006; Bond & DePaulo, 2008; Ekman & O'Sullivan, 1991).

Nonetheless, research has revealed that some specific groups such as the Secret Service, the CIA, teachers, and even criminals do better than average at detecting lies (Ekman & O'Sullivan, 1991; Granhag, et al., 2004; Hartwig, et al., 2004). Those who have examined aspects of personality have shown that highly manipulative persons and self-monitoring may be related to lie-detection (DePaulo & Rosenthal, 1979; Granhag, Andersson, Stromwall, & Hartwig, 2004). The present research has extended the literature on lie detection to include specific aspects of personality that together appear to predict lie-detection accuracy among college students. As predicted, students whose personalities best matched that of an ENTP (Extravert, iNtuitive, Thinking, Perceiving) were best at identifying liars on video.

Having drawn conclusions about the effect personality has on lie detection accuracy, it's important to discuss applicable uses in the real world. Based on the findings in this study it is possible that government agencies such as the Secret Service, CIA, DEA, or even local law enforcement would benefit from these new tools to help increase their success rate towards lie detection. Another opportunity as shown in research conducted by Porter et al. (2000) is to provide persons whose personalities best matched that of an ENTP with proper training using multiple cues and patterns of cues which could very likely increase their performance.

Other options for future research would be to use live actors for the study instead of filming them. The videotapes were filmed with a lower resolution and made observation of all body language and facial expressions difficult. Using actors to share their stories live and in front of the participants may help to improve accuracy if more possible cues are visible. Another potential drawback in this study was using a classroom setting for all of the participants. Although they were given specific instructions to not share their opinions with others and to pay attention to the videos as not to miss anything, the possibility that biases were shared or attention was limited is present. To keep validity of the research, future studies should consider testing participants individually.

Prior research has shown the need for a greater understanding of lie detection and why some do better than others. This preliminary research should be followed by research on a larger scale in order to verify the current findings. Because the entire 4-letter code ENTP was correlated with accuracy in lie detection, it will be important to more closely examine the individual and combined relationships of each of the four personality dimensions.

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