

Identification of Dishonesty Through the Observation of Non Verbal Cues

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Abstract

The contents of this paper include the details of a sixteen-week experiment and research study. The reason for this study is to continue the research on non-verbal cues of deception to clarify the inconsistent conclusions of which non-verbal cues are in fact deceptions detectors. The experiment was conducted with ten male and ten female participants by individually asking that they provide two true and one false statement about themselves while a boundary separated the researcher and the participant so that neither one could see the other. The instrumentation that was used in this experiment was an iPhone 5s for the use of recording the subjects during the interviewing process. The results of this experiment concluded that the most common non-verbal cue is head shifts. The non-verbal cues of deception that were found throughout the course of the experiment are head shifts, leg movements, hand movements, posture shifts, arm movements, smiling, and facial touch. This paper also includes literature related to the topic of non-verbal cues of deception and detecting deception, as well as an analysis of the experimental data.

Key Words: deception, lying, physical cues, non-verbal cues, deception detection, non-verbal behavior

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Chapter One: The Introduction

Background and Statement of Problem

Why study the identification of dishonesty through non-verbal cues? This is a research study that has been performed, but we have learned it always helps to expand knowledge on a topic by conducting further research. There has been confusion as to how someone can accurately determine whether or not a person is lying. Studies have shown that while detecting a particular cue does prove to determine when someone is lying, another study will disprove that theory.

Some may believe that the direction in which a person's eyes are looking can determine if they are telling the truth or not. However, others have indicated that the direction in which a person is looking while speaking has no correlation to whether or not that person is telling the truth. Furthermore, some researchers have stated that actions of twirling a piece of hair or placing a strand of hair behind the ear are gestures that show dishonesty. This raises the question: if twirling and placing hair in a particular fashion is an accurate depiction of lying, does it only apply to females? Men don't typically have the ability to place a strand of hair behind their ear when they are nervous being as most men have shorter hair. This begs the question, are some cues different for different genders? Some researchers say so, while some disagree. Maybe females have some gestures that men do not perform, and maybe men have some cues women do not perform, but in the end most cues are not gender motivated.

These contradictions in studies raise the questions of what non-verbal cues truly determine if a person is being honest or not? In order to gain more understanding as researchers,

we will conduct research necessary to ascertain further findings. Honesty is something most people value greatly in our society. Knowing when someone is being truthful or dishonest, it is easier to depict who is trustworthy. In depicting trustworthy people, it is helpful to know when people are being honest or dishonest. If more people understood the cues of dishonesty, perhaps it would encourage people to be honest more frequently. This would improve people's personal lives as well as better business-related relationships in the workplace.

Purpose of the Study

The purpose of this study is to expand knowledge and understanding on how to detect deception in other people. It is important to understand what specific cues display dishonesty because there is limited research on the matter. Therefore, by conducting this research we will be providing to the academy and to the general public a better understanding of the non-verbal cues of deception.

Major Research Question

What are the non-verbal cues displayed by individuals when being dishonest?

Sub Questions

- Are there gender differences in the display of non-verbal cues?

Hypothesis

When an individual is being dishonest they will display non-verbal cues.

Theoretical Framework

Previous conducted research has proven that while telling a lie without premeditated

thought, people were more prone to a large variety of specific physical cues. Liars are subject to display more foot and leg movement, more shifts in posture, more fidgeting, less smiling, less eye contact, and have a tendency to be more tense and to raise their chin more than truth-tellers (O'Hair, Cody, and McLaughlin, 1981). The most exhibited cues perhaps, were body adaptations such as fidgeting, posture shifts, and physical movement of any kind (O'Hair, Cody, and McLaughlin, 1981). However, some researchers would disagree in that other studies have said that these cues do not prove deception due to the fact that some cues were exhibited in both liars and truth-tellers.

The level of which someone is prepared to tell a lie has yet to be studied, however it is known that when telling a premeditated lie, people are able to control their cues. When demonstrating a rehearsed lie, liars give shorter answers with longer response latency and have lower rates of posture shifts (O'Hair, Cody, and McLaughlin, 1981). Cues that were shown during a premeditated lie were not displayed during the lie that was not premeditated, with the exception of body adaptors (O'Hair, Cody, and McLaughlin, 1981).

There are two categories of deception cues: thinking cues and feeling cues. Factual deception is related to thinking cues, where cues are typically leaked more from the liar's head (O'Hair, Cody, and McLaughlin, 1981). Emotional deception is related to feeling cues, where cues are typically leaked more from the liar's body. Liars who experience guilt when telling a lie tend to show deception cues more than liars who feel little to no guilt. Those attempting deception are more likely to feel guilty of telling the lie when they are deceiving someone who trusts them, and/or whom they trust (O'Hair, Cody, and McLaughlin, 1981).

Individuals lie on an average of one to two times per day (O'Hair, Cody, and McLaughlin, 1981). Lies most frequently consist of false feelings, preferences, attitudes, and opinions. To a

liar, the main objective of a lie is to gain a psychological reward for himself or herself. Most people lie to project a better image of themselves and to avoid judgment to protect themselves from getting their feelings hurt (O'Hair, Cody, and McLaughlin, 1981). It was predicted, and proven to be true, that lies are typically shorter and less detailed compared to the truth. It has also been stated that lies are actually more difficult to communicate than the truth in that a lie is new and hasn't been experienced while the truth is just a telling of what the speaker remembers (O'Hair, Cody, and McLaughlin, 1981).

Significance of the Study

Provided that there is limited research referring to deception and detecting deception through non-verbal cues, there is an existing uncertainty of what non-verbal cues accurately depict deception due to contradiction. Previous experiments focus more on the reasoning behind the lie, the point in time when the cue of deception is revealed, and the type of lie, rather than the specific cues that are shown when lying. Conducting research that focuses primarily on the observation of non-verbal cues when lying will provide people and the academy with a better general understanding of how to detect when a person is lying.

Definitions of Terms

Deception: Deliberate attempt to mislead others. (Bella M. DePaulo et al, 2003)

Leakage Cues: Reveal what the liars are trying to hide- typically what they feel. (Bella M. DePaulo et al, 2003)

Dishonesty: The act of not being truthful.

Cues: A verbal or non-verbal stimulus that provides meaning.

Non-Verbal: Not using words/speech.

Premeditation: The act of preparing for a specific event.

Honesty: The Act of telling the truth.

Assumptions and Delimitations of the Experiment

Assumptions: The experiment is expected to reveal a portion of the possible non-verbal cues displayed when lying.

Delimitations: Delimitations that we have set for our experiment include the age of the participants and the hypothetical situation in which the participant will tell the lie, thus provoking a spontaneous lie. We have set the boundary of age between thirteen and fifty-five years old to eliminate factors such as an underdeveloped mind in younger possible participants and a decaying mind in older participants. We also aim to focus on the non-verbal cues of a spontaneous lie, or a lie that has not been rehearsed, so that our results will more closely resemble real-life occurrences of dishonesty.

Limitations of the Experiment

Our experiment follows a small amount of fully related work. So one of our limitations is previous research to back up our experiment. Although there is much research related to our topic, most studies mainly focus on the situation of why the person is lying while we are focusing only on non-verbal cues of lying. Within the small amount of research that fully relates to this research study the focus of the researchers in each study varies, thus creating another limitation we face. The amount of participants we will be able to obtain to conduct our research can also pose a limitation. We are unable to conduct research with a large sample of people due

to having a limited amount of people that we know would be willing to participate in the experiment. Being as we are realistically only going to be able to sample the population the remote area in which we live, our location of participants also presents a limitation.

Chapter 2: A Review of the Related Literature

An abundance of research has been conducted on dishonesty and the different aspects related to dishonesty. Many researchers have gone into depth on this topic looking at a wide range of subtopics related to lying. These different perspectives on lying can range from the physical cues shown by an individual who is trying to portray honesty when actually that person is being dishonest, to even the varying circumstances in which a lie could be provoked.

There are so many perspectives one can take when it comes to the study of dishonesty. In our study, we have taken the approach of determining what non-verbal cues a person displays when telling a lie. In our research of related literature, we have come to find that there is not a large quantity of research specifically relating to our topic. However, we have discovered that there is a lot of literature on dishonesty in general, and we have learned a lot about the different approaches to studying dishonesty from reading the material.

Physical Cues of Deception

When attempting to detect deception, research has found that by judging the response of an individual quickly and efficiently, there is actually a higher chance of getting an accurate prediction of the individual's true intentions of their response (Vrij, A., Evans, H., Akehurst, L., & Mann, S., 2004). There is much controversy as to whether some cues qualify as deception cues or not. Studies that have supported certain cues as approved deception cues also mention that there are studies that claim to disprove that particular cue of being an actual deception cue. Since this is the main focal point of our study, we looked into the literature available to us relating to the cues that are believed to detect deception, or lying.

We have found that in many cases, the non-verbal cue of the increase in body movement was common. Body movements can include shifts in posture, shaking of the leg, and even hand gestures.

However, hand gestures, commonly known as illustrators, have been said to be an insignificant deception detector as there is no clear difference of use of illustrators between liars and those who are telling the truth. Though, the debate has been made that the type of illustrator used could potentially identify a liar from someone who is telling the truth (Hillman, J., Vrij, A., & Mann, S., 2012). When the liar is telling his or her lie, it is typical for them to experience a emotion of either guilt, fear, anxiety, or a combination of two or more of these emotions. When telling a lie, if the liar is experiencing any or all of these emotions it will be easier for the person being lied to to recognize that they are being lied to by realizing the emotion that person is portraying (DePaulo, B. M., Lindsay, J. J., Malone, B. E., Muhlenbruck, L., Charlton, K., & Cooper, H., 2003). Other, more specific, body movements such as repetitive tapping or small circular motions of the feet or of the hands or fingers have been said to also detect deception in an individual (Mann, S., Ewens, S., Shaw, D., Vrij, A., Leal, S., & Hillman, J., 2013).

Avoiding eye contact was also mentioned to be a detector of dishonesty in an individual (Levine, T. R., Asada, K. K., & Park, H. S., 2006). Though all of these cues have been said to detect dishonesty, there is typically at least one other study that always raises debate of whether or not that is accurate. Some even will go as far to say that they have disproved the notion that a particular cue actually detects deception in someone who is actively lying.

In one article that we have read, it was stated that liars don't typically display a decrease in eye contact and that although this is a common belief, research has found that it is not true.

(Vrij, A., & Mann, S., 2001) Being as this is, we have the motivation to find out for ourselves what cues are displayed in an individual who is being dishonest.

Convincing People of Honesty When Lying

In our research we have found that a good amount of the literature we have read has mentioned the study of cues displayed when a person is trying to hide the fact that he or she is lying. It is commonly known that when a person is lying, certain physical cues can expose the individual of their lie.

Generally speaking, common cues could consist of a decrease in eye-contact, an increase of body movement, and even a variation in voice pitch (typically a higher tone of voice) (Taylor, R., & Hick, R. F., 2007). This common theme of convincing people of honesty when lying in the literature we have read suggests that when a person is trying to illude the individual he or she is lying to, that the lying individual will over-exaggerate honesty cues.

The most commonly observed cue of this circumstance is the amount of eye-contact the liar makes. It has been said that when a person who is being dishonest is attempting to appear honest, they purposefully decrease their actions of deception and make more of an effort to seem convincing to their audience. Therefore, when someone is attempting to look honest, instead of breaking eye-contact with their audience he or she will maintain consistent eye-contact to decrease the chances of their audience suspecting them of lying. (Mann, S., Ewens, S., Shaw, D., Vrij, A., Leal, S., & Hillman, J., 2013).

We have also discovered an interesting aspect of this perspective on lying, which consists of the attempt to convince others that an individual feels the opposite of how they truly feel. One of these aspects is referred to as “two-tiered lies”. Two-tiered lies consist of lies persuading the

liar's audience to believe that the liar is experiencing a positive feeling when actually he or she is experiencing a negative emotion, or vice versa. For example, people commonly reply to the question "Are you ok?" with "I'm fine." to deceive the person asking them how they are feeling from their actual emotions by providing them with an answer that implies a positive emotion rather than a negative one.

The other style of lying we have discovered while reading is referred to as "hamming". This concept consists of persuading the liar's audience to believe that the liar genuinely likes a particular person when in reality the liar hates that person, or vice versa, by over-exaggerating his or her pretend feelings toward the targeted individual. For example, if someone were to discover that his or her group of friends genuinely likes the person that they have secretly grown to dislike, he or she will act overly genuine towards that person in attempt to convince others that he or she actually likes that person (DePaulo, B. M., & Rosenthal, R., 1979).

Overall we have found that it takes more effort to convince someone of the truth when lying than it does to simply tell the truth. This of course would be logical, being as it takes less energy and thinking to simply restate something that you already know rather than developing a new scenario in which one claims to be the truth.

Circumstantial Lying

Through reading various articles, it has come to our attention that there are two different types of situations in which people typically tend to be dishonest. One situation is referred to as a "serious" situation, where the circumstance could have a negative impact on the individual who is telling the lie.

The other situation is referred to as a “trivial” situation, where the circumstance could have little to no negative impact on the individual telling the lie. It has been said that the average person tells at least one lie while under a trivial circumstance per day (DePaulo, B. M., Ansfield, M. E., Kirkendol, S. E., & Boden, J. M., 2004). Depending on which circumstance someone is in, can determine the degree to which the cue of deception is displayed.

Typically under a serious circumstance, people are more prone to leaking evidence of deception due to the consequences they may face, such as imprisonment or the loss of a job. The higher the motivation is to deceive someone is, the more likely that person is to actually show more non-verbal deception cues, but less verbal deception cues (DePaulo, B. M., Lanier, K., & Davis, T., 1983). When an individual is faced with a trivial circumstance, the stakes aren't as high, so the individual naturally has more control over what he or she displays in his or her physical cues of deception (Taylor, R., & Hick, R. F., 2007). When faced with a high-risk, or serious, circumstance the individual is likely to experience an increase in blood pressure, heart rate, and even respiration rate (Vrij, A., & Mann, S., 2001).

Though physical cues can detect when someone is being dishonest, it is also very important to note what circumstance that individual is placed in while he or she is actively telling the lie. The difference between a serious and a trivial circumstance can help to better determine what is the truth and what is the lie.

Deception Detection in Speech

Though in our particular research study we are primarily focusing on the non-verbal aspect of deception detection, we feel that it is also important to touch on the verbal aspect as well since it is often mentioned throughout the literature we have read. When an individual is attempting to

deceive someone, the first thing to notice is that their responses will be much shorter and much less detailed compared to someone who might tell the truth (Dando, C. J., & Bull, R., 2011). Some of the believed verbal cues for detecting deception are the pitch of the presumed lying individual's voice, the individual's choice of words, and the way they go about forming their thoughts into sentences. It has been said that when focusing primarily on these verbal cues alone, it was easier to detect a lie in contrast to focusing on non-verbal cues to detect a lie (DePaulo, B. M., Rosenthal, R., Rosenkrantz, J., & Green, C. R., 1982).

Other verbal deception detectors consist of the rate at which the person speaks, the amount of times that individual stutters, the amount of time it takes for the person to respond, as well as pauses in speech. It has been stated that when attempting to deceive an audience, the liar will most likely take a longer amount of time to respond to the question at hand (Vrij, A., Edward, K., Roberts, K. P., & Bull, R., 2000).

Though there has been little research and study done on the use of verbal cues in deception, the idea that verbal cues are more revealing to deception remains consistent throughout the literature (Porter, S., & Yuille, J. C., 1996). However in order to reveal anything, the liar needs to provide a lengthy response so that the person being lied to can determine whether or not the response fits the criteria of a verbal cue of deception (Vrij, A., Mann, S., Kristen, S., & Fisher, R. P., 2007).

Chapter Three: Research Design and Methodology

Introduction

The goal of this experiment was to analyze and document the non-verbal cues to deception seen in male and female participants ranging in age from fifteen to fifty-five. We have achieved this by examining interviews among twenty participants. We strive to determine the common non-verbal cues to deception to expand our knowledge and the knowledge of other on this topic.

Overview of Research Design and Rationale

In order to gain a better understanding of the non-verbal cues that are displayed during deception, we have developed a research design strategy that we have executed in a after-only experiment design. Prior to actually executing the experiment, we developed a letter of consent that the experiment participant was asked to sign before interacting in the experiment. By signing this letter of consent, the participant is made fully aware of what they were participating in, and agreed to the terms stated in the letter of consent.

A barrier to separate the experimenter and the participant was used to promote the natural tendencies of the participant when they are interacting with the experimenter. During the experiment, the participant was alone in a room while the experimenters were outside of the room with a closed door acting as the barrier. The closed door as a barrier was intended to provide the participant with a sense of security and should have relaxed the participant. Since we have found that gaze aversion is common in those who lie, we assume that if the participant is in a situation where they do not have the pressure of directly looking at someone, they will be more likely to display their other non-verbal cues.

Due to the fact that the experimenters were unable to directly observe the participants while conducting the experiment, a video camera had been set up to capture the participants' non-verbal cues that they displayed. Prior to executing the experiment the experimenters explained to the participants that the purpose of the experiment is to determine the verbal cues of deception rather than the non-verbal cues. Doing so was meant to provoke the participants to focus more on their voice and the content of what they said rather than their physical actions.

While the experiment was in the process of execution, we gave the participant roughly forty-five seconds to come up with three statements in total. Two of the three statements were instructed to be truthful statements about that particular individual, and the remaining statement was instructed to be a lie about that individual. Prior to the participant stating their two truths and one lie, the experimenters explained to the individual that they could be either rewarded, or faced with a consequence. The experimenters told the participant that they would be rewarded or faced with a consequence depending on whether or not the experimenters could determine which one of the three statements was the lie. The participant was told that if the experimenters are able to guess which of the three statements was the lie, then the participant would face the consequence of "owing" the experimenters five dollars.

By the end of the experiment, we informed the participants that they would have never owed us anything, regardless if they were able to deceive us or not. It was then explained that if the statement the experimenters guessed is the lie, and it turned out that we guessed incorrectly, then the participant would be rewarded with a handful of candy. By the end of the experiment the candy was offered to each participant as a reward for participating in the experiment regardless if the participant was able to deceive the experimenters or not. Such a reward and consequence system was intended to create a simulation of a low-stake circumstance. Even though it has been

stated that low-stake circumstances aren't as motivating as high-stake circumstances, we figured that it was better to create some form of circumstance to motivate the participant to be more inclined to showing their non-verbal cues when stating their one dishonest statement. After we had collected all of the data for the experiment with the video camera, we explained the full intended purpose of the experiment.

Sampling Design

The sample was composed of friends and family as well as members of the fairfax community. Those who participated in this research experiment will have agreed to volunteer in a daylong (a few hours) experiment on detecting non-verbal cues to dishonesty.

Data Collection Procedures

In our experiment, as previously noted, we had to set up a video camera to record the results of our experiment to later analyze and conclude our experiment. This is how we obtained our data and determined what non-verbal cues were exhibited by the participants in this experiment.

Data Instrumentation

The one and only instrument we used is the video camera that was used to record the full experiment. The video camera captured the displayed non-verbal cues that the experimenters were unable to observe during the experiment due to the closed door serving as the barrier separating the experiment from the participant.

Field Testing

In order to determine that our plan of execution for our experiment was in fact applicable to obtaining the information we desired for our purpose of study, we ran two individual practice studies before doing the actual experiment. We proceeded as we normally would have in the actual experiment by first giving the participant a consent form to sign and date, and then we began to debrief them for the experiment. We explained to them that they would be sitting in the place we have set up for them as we record the interview. We explained that the video camera was being used to record each session so that we could go back after the experiments were completed to refer back to anything we may have missed during the execution of the experiment.

We then told the participants that we would be behind a door asking questions and that they could answer them however they like. We explained that the reason we were going to be behind the door was so that we could primarily focus on their voice and what they say. We then explained to them that there is a second part to everything that we had just explained to them, but that we would further explain that part once we were behind the door.

Once we were behind the door, we explained to the participant that in actuality we were going to have them state three basic facts about themselves, two of which would be a true statement and one of which would be a false statement. We then told them that our job was to attempt to guess which of the statements that were said was the false statement. In order to create a low-stake circumstance, we told the participants that if we successfully guessed which of their statements was the false statement, that the participant was obligated to give us five dollars. In return, we told them if in fact they were able to deceive us and that we guessed the incorrect false statement, that they would be rewarded with a piece of candy.

We then asked the participants to say the first thing that comes to their mind as their two true statements and one false statement. After the participants state their truths and lie, we made a guess as to which was the false statement and the participant would tell us if we were correct or not. We would then proceed to explain to them the true purpose of our study and that they never would have been obligated to pay us in any amount of money. As a reward for participating, we offered candy to each of the participants.

We then observed the videos of each participant during the false statement to see if they displayed any cues when they were lying. They both displayed varying cues that have been previously linked to deception in other works that we have researched. Being as they displayed non-verbal cues linked to deception, this confirmed that our method of experiment was successful in providing us with the result we desired, and continued this method with other participants for the actual experiment.

Data Analysis Plan and Procedures

Once the experiment was completed the data was collected by referring back to the videos of the experiment participants. The observed non-verbal cues from the recordings were documented, and reviewed once more so that the experimenters could count how many times each person used a particular cue. Lastly, the experimenters referred to the videos again to see if there was any correlation with gender and the specific cues displayed by each individual while they stated their one dishonest statement. The experimenters took the data collected and transferred it to an excel spreadsheet where the different sections stated which age the participant was and what cues were displayed. We have averaged our data to come to a conclusion of the most common non-verbal cues to deception according to age.

Limitations of the Research Design

With this experiment of detecting non-verbal cues during deception there have a number of limitations for this research design. Namely being that we cannot obtain a country-wide or perhaps even a world-wide sample of participants for this experiment, so the participants will primarily be from the area of northern Virginia. We also cannot observe a real-life situation in which we did not create where we could examine the non-verbal cues of deception due to the amount of time we have to conduct this experiment as well as ethical reasons.

Internal and External Validity

For this experiment, the internal validity is reasonably high. Though we cannot tell for certain the true reason behind why someone expresses one non-verbal cue compared to another individual, it is assumed that with the stakes at hand, the actions of the participants are mostly internally valid.

According to previous research studies, it was found that when the stakes were higher, the more non-verbal cues were leaked. In attempt to simulate some form of a stake at hand, we created the reward and consequence system.

Though these stakes are not high in the least, in fact it is safe to say that they are significantly low, we expect to see more of a leakage in non-verbal cues than there would have been had there been no stake whatsoever. As for external validity in this experiment, there is reason to say that it would be somewhat neutral.

Due to the sample of participants in this experiment, it is difficult to say that this experiment is externally valid. Being as the research team was only able to sample a group of

participants from the northern Virginia area, that poses as a threat to this experiment's ability to be generalized since the area of northern Virginia is generally financially stable and the same cannot be said for the rest of the country or the rest of the world.

Expected Findings

We expected to discover the most common non-verbal cues displayed in our participants. Such common non-verbal cues include posture shifts, illustrators, and fidgeting. Though we understood that not all of our participants would display these cues, we expected to see these three non-verbal cues displayed the most.

Ethical Considerations

In this proposed study, the ethical issue we faced is that we were using deception ourselves when first explaining to the individual participants of what would consist of the experiment. We first explained to the participants that the purpose of this study is to detect verbal cues of dishonesty rather than the actual purpose of study which is to detect non-verbal cues of dishonesty. We also partially used deception with our participants in that we told them that the reasoning in which they were being recorded by the video camera was so that we could go back later to go over what we had conducted in the experiment.

Although that was true, it was not the whole truth. While we did record our participants for the sake of going back to review our work, the true purpose of recording the experiment was to observe the non-verbal cues the participant displayed when he or she told their one deceptive statement. There was also the issue of creating the low-stake circumstance for the participant in

the experiment. As noted previously, we created a “consequence” for the individual if he or she was unable to deceive us with their dishonest statement.

This “consequence” consisted of telling the participant that he or she owed us five dollars. Though this was told to our participants, we had no intentions whatsoever to make them pay us or to accept any money from the participants. In fact, each individual was notified after completing the experiment that although we told them that they owed us five dollars, it was only to create a low-stake circumstance that would motivate them to display non-verbal cues and that they did not owe us anything. However, we made sure to obtain consent from each individual participant that we could record them during the experiment as well as made them aware of the potential “consequences” in being involved in this experiment.

Conclusion

For our research experiment the research team took analyzed data from ten male and ten female volunteers ranging in age from fifteen to fifty-five years old. Our data included non-verbal cues of deception, which cues were seen most commonly, and if they correlated with different genders. We have taken this data and calculated it in to a frequency pie chart and a bar graph. We have expanded on previous researchers work and we have strived to expand the knowledge on the non-verbal cues to deception.

Chapter Four: Research Findings and Discussion

Overview of Data Analysis

Being as the purpose of our study was to determine what non-verbal cues of deception were truly displayed when telling a lie, we have created the figures below to demonstrate our findings. The major research question for this experiment is: what are the non-verbal cues that a person displays when telling a lie? The sub-question to this research question is: is there a correlation between displayed non-verbal cues of deception and gender? In Figure 1 we have put together the percentages of frequency of each cue that was leaked for the total sample of our participants. In Figure 2, we have shown the differences in frequency of cues leaked for each gender.

Figure 1: Frequency of Non-Verbal Cues

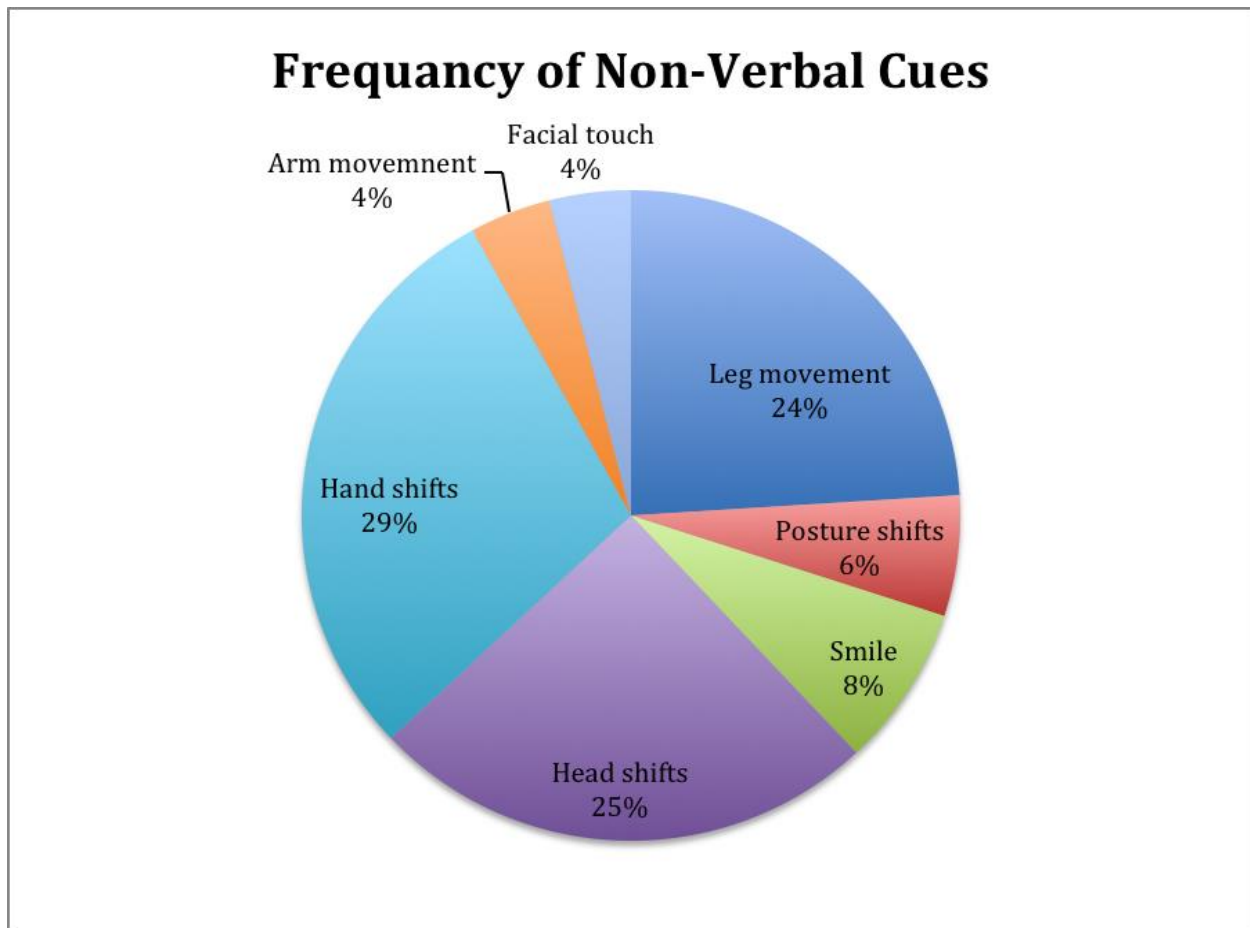


Figure 1 is a pie chart showing the percentages of leaked non-verbal cues.

Figure 2: Number of Displayed Non-Verbal Cues According to Gender

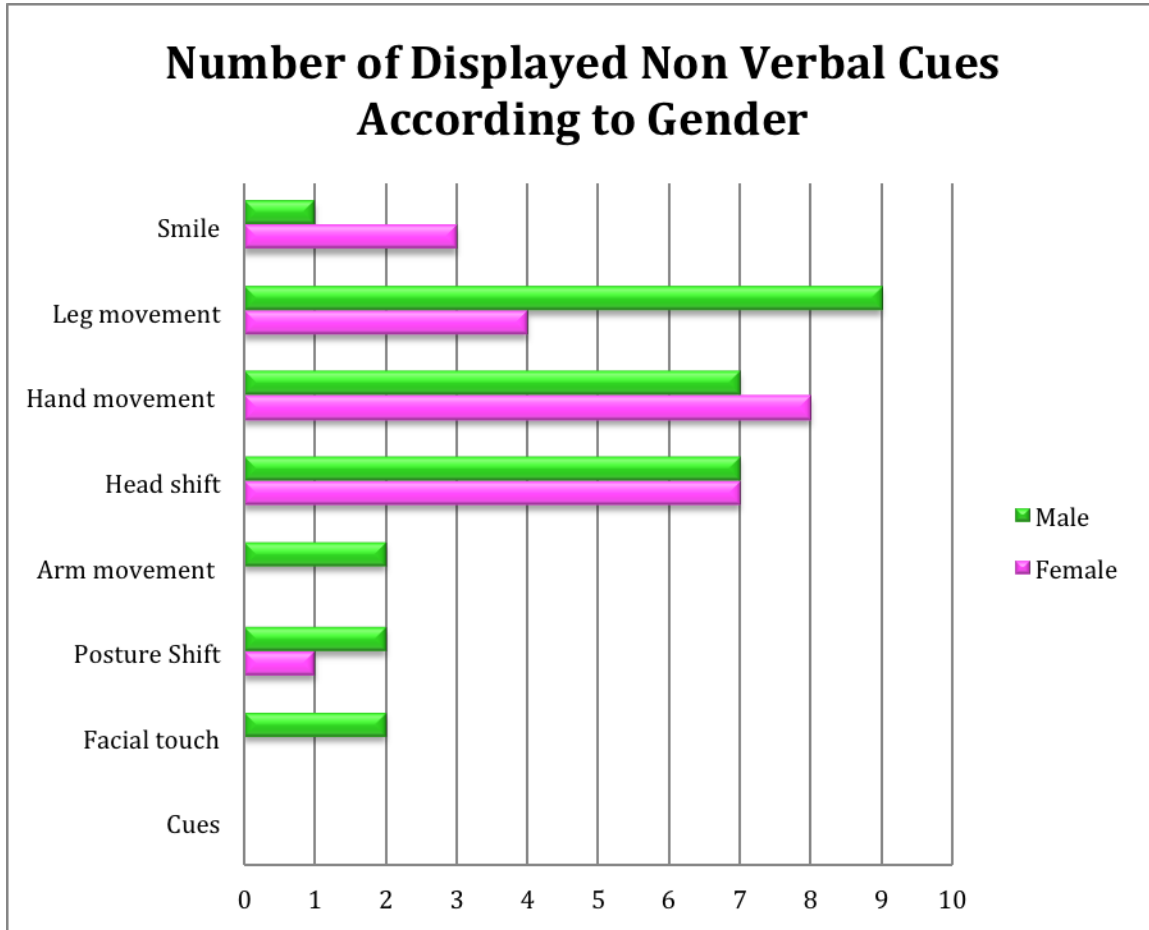


Figure 2 is a bar graph on comparison of leaked cues by gender

In order to capture evidence of the non-verbal cues displayed by our participants, we have recorded each individual interview with each of our participants. After completing each interview, we reviewed each interview by watching the recorded footage for every participant. We made it a point to watch each video at least five times so that we could be certain we did not miss any important information. While watching the footage, we primarily focused on the

section of the video in which the participant was stating his or her false statement about his or herself. While watching this section of the footage, and this section only, we searched for any non-verbal displays of deception. If the participant displayed any non-verbal cues, we took note to which cues the participant displayed. After determining what cues had been displayed by the twenty participants, we tallied up the frequency of each displayed non-verbal cue. We then repeated this process but rather than doing it in reference to the entire sample, we took gender into consideration.

Discussion

What the experimenters have discovered, is that the non-verbal cue of deception we named “hand movement” was the most commonly displayed. This finding did not complement what we expected to find, which was a higher frequency in posture shifts. The results showed that out of twenty participants (ten male, ten female) fifteen participants demonstrated hand movement during the time in which they stated their false statement about themselves.

Chapter Five: Conclusion

Gaps in Understanding and Research

While conducting research, complications arose in the literature as to what the non-verbal cues to deception truly were. This complication is what motivated this experiment to occur. Within various pieces of literature there were contradicting statements as to whether or not particular non-verbal cues detected deception. With this gap in understanding, there was a need to execute this experiment in order to discover what non-verbal cues individuals' display when they are attempting to deceive someone.

Summary of Key Findings

The concluding our experiment we achieved successful results. For our experiment we tested teen male and teen female subjects. After conducting our research and analyzing our data, we concluded that our hypothesis is supported. After analyzing our subjects we had evidence of the most commonly researched non-verbal cues of deception. Our subjects leaked the cues of, smiling, leg movement, arm movement, head shifts, hand movement, facial touches, and posture shifts. **Figure 2** concludes that there are no gender variations in leaked cues of deception. Our results concluded that hand movement being preformed during deception is the most commonly observed cue, followed by hand shirts, followed by leg movement, these three cues only very by one apart from another. Our results for percentage of seen observed leaked cues are shown in **Figure 2**.

Implications of the Findings

If this study were to continue, based on our findings we would predict that the majority of the participants would continue to show the non-verbal cue of hand movement as the primary non-verbal display of deception. Although, there is a high chance that either head shifts or leg movement could take hand movement's place as the most commonly observed non-verbal cue of deception if this study were to continue for a substantial amount of time. We remain confident that the factor of gender will in no way effect the outcome of the continued research.

Recommendations for Continued Study

For continuation of this study it would be best for the researcher to get a larger pool of participants of all genders. Having a more diverse pool or participants will insure a stronger hypothesis. Another aspect of the experiment that can be enhanced would be the advertisement of the study, rather than only using word of mouth it would be more effective in getting a larger pool or participants if flyers and adds were to be posted. Enhancement of technology would be something the researcher would benefit from in this experiment, using a higher tech camera and adding microphones to the questionnaire room would make reviewing the experiment much simpler. Our findings were strong and supported our hypothesis but there is much room for improvement in conducting this experiment.

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APPENDIX

Appendix A: The Consent Form

Consent Form to Participate in a Research Study

Identification of Dishonesty Through the Observation of Non Verbal Cues

Research Study Conducted by: Shannon Clarke and Caroline Krom

We encourage you to read this entire consent form and ask any questions you may have prior to agreeing to participate in this study.

You have been asked to participate in this research study due to the following:

- You qualify to participate because of your age, which is between fifteen and fifty-five.
- You qualify to participate because of your gender, which is either male or female.
- You have been previously asked if you would be willing to participate in a research study and agreed.

Purpose of the Study

The purpose of this study is to determine what cues to deception truly exist. Also, make note that the data gathered in this study will most likely be presented to the students and faculty of Northern Virginia Community College.

Description of the Study Procedures

Upon agreeing to participate in this research study, you will be asked to do the following:

- You will be asked to participate in a verbal questionnaire with a boundary set up so that you, the participant, and I, the researcher cannot make eye contact.
- You must also be aware that we will be video recording our interview sessions to go back later and observe the interview.

Risks/Discomforts of Being in this Study

You may experience slight discomfort or perhaps slight anxiety from the verbal questionnaire. Please note that if you do happen to feel at all any discomfort or anxiety and do not wish to continue with the study, you have the option of excusing yourself from the remainder of the study.

Benefits of Being in the Study

There are no substantial benefits of participating in this study. However, you will get the benefit of knowing your own deceptions cues.

Confidentiality

Names of all participants will remain anonymous throughout the entire experiment. Video recordings will be disposed of after the researchers have completed the study. We expect to fully complete the study no later than December 17, 2015. However, if you would like the video

disposed of sooner than the posted date, please let the researchers know and we will comply with your request. We will not include any information in our study that would make it possible to identify you.

Payments

You will not receive any form of payment for participating in this study. However, you may be rewarded.

Right to Refuse or Withdraw

You may refuse to take part in this study at any point in time without affecting your relationship with the investigators of this study. You have the right to answer the questions you choose to answer. You also have the right to not answer any of the questions, as well as to withdraw completely from the interview. You also have the right to request for the interviewer to refrain from using any of the interview material.

Right to Ask Questions

You have the right to ask questions about the research study and to have those questions answered at any time. If you have any further questions that you have forgotten to ask prior, during, or directly after the experiment, feel free to contact either of the experimenters. Caroline Krom's email address is: cfk2729@email.vccs.edu and Shannon Clarke's email address is: sbc27791@email.vccs.edu . Caroline Krom's phone number is 703-965-8764 and Shannon's Clarke's phone number is 703-638-0936. If you would like a copy of the results, please make a request and the study will be sent to you.

Consent

Your signature below indicates that you have decided to volunteer as a research participant for this study and that you have read and understood the information provided above. Any material used in this study will be given to the participant upon request.

Subject's Name (print): _____

Subject's Signature: _____ Date: _____

1 Researcher's Signature: _____ Date: _____

2 Researcher's Signature: _____ Date: _____