Body Language Detecting Deception

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Abstract

The objective of this review paper is to discuss the understanding of body language deception. This study explains a detail interpretation of body language also known as nonverbal cues including facial expressions called micro-expressions and other bodily moves of speakers/suspects during interviews and investigation process. It will emphasize on importance of reading body language in criminal investigation for lie detection and proper training of investigators/interviewers for an effective interrogation. It explains proper documentation of nonverbal cues and recording them for further assistance in multiple interviews in future as these cues remain for a short time. It will enlighten the effects of gender, social and economic status on body language and their resulting cues. A proper knowledge and training of reading nonverbal behaviors can increase forensic application of body language in criminal justice system for the identification of the right guilty party.

Keywords: Body Language, Lie detection, Interpreting Nonverbal Cues, Criminal Investigation.

1.   Introduction

Words when spoken contained all the thoughts and feelings which usually walk off unsaid and fail to set out their way through the vocal tract as in verbal form of communication (1&2). Scientists agree on one thing that how fast we process thought, i.e. we think much faster than we speak. Brain processes the thought and our body visibly reacts faster before we think of what we want to say about that thought. Even before anything being said, our body will give away to our answers (5&17). Therefore, this type of body reaction can deceive the individual who wishes to keep their thoughts and feelings as secret. This reaction or language is said as non verbal communication normally known as 'body language' and its interpretation is called Kinesics (1, 2&4). All parts of the body such as facial expressions, head, eyes, arms and legs etc. are involved in non verbal communication (1, 2&11). Some studies have shown that kinesics or body language accounts for 60 to 65% (19&21) and some for 55-95% of all communication (4). Such as an investigator may observe a subject lying if its words and body language or kinesics do not agree (4&5). When talking about body language, we go for a slight indication or cue that is sent and received to each other nonverbally (18). Body language of people around us whether at office, out with friends or during an interrogation speaks volume. Like from facial expressions, eye behavior to the direction in which body moves or a person points his or her feet, reveals what a person is really thinking and the things we don't say can still suggest volumes of information (19&20).

People tell lies and betray of varying degrees in every day experiences with closely linked action and emotion (8&16). For a deceiver to lie, it requires him to keep facts straight, making story believable and hold up scrutiny (13). Usually a suspect says all the truth or right things without making a single slip of tongue during an interview but it is his/her body language that will clue that he/she is lying (1). While individual make every effort when they tell truth to ensure that people understand whereas liars try to manage people's opinion. As a result, people unconsciously signal deception via non verbal cues (9&13). Shakespeare said, 'guiltiness will

speak though tongues were out of use' (1). Similarly like fingerprint cues are for eternity even if they are not entirely evident. However, in contrast with fingerprints, cues from body language can possess more than one association which should not be misinterpreted. Body language cues as evidence are different from that of physical pieces of evidence as these are not carefully preserved to be filtered by analysts in the lab. Body language during an interview can be recorded for an expert to review but with very less opportunity to hold up and distinguish the evidence which body language can present (1&5).

Body language is helpful even for a layman to understand if someone is honest or truthful, or hiding something back. But it would be more effective for a trained person in recognizing and understanding of body language (1&8). In some situations, recognition and understanding become critical such as within criminal justice system. In criminal investigation, interpretation of body language can provide constructive base in determining the direction that will take (1, 4&6). For a productive investigation, body language can be useful if approached with suitable care in recognizing certain physiological responses with a range of emotional sources. Its proper use can assist police officer and guide jury members as they listen to the suspects and witnesses during interviews respectively (1&7). It is important for officers to get an expert literacy in this reference as they manage the investigation and are in frequent contact with witnesses and suspects. Proper training can ensure the accuracy in interpretation of body language. In criminal justice system, this accuracy is not negligible thing if the purpose is to discover the truth and to protect the citizen by ensuring that no innocent is mistakenly convicted, and to identify the guilty. But unfortunately, this necessary training is often neglected and officers rarely get advance education in nonverbal communication after they leave police academy (1&5).

2.   Understanding Body Language

Body language is a non verbal form of communication between two or group of individuals which consists of physical behaviors such as body posture, gesture, limb movements, facial expressions and eye movements (2, 6&7). All such behavioral signals are sent and interpreted by humans entirely subconsciously. Clue from the body language is the result of attitude or state of mind of a person. Like it may present aggression, thoughtfulness, boredom, relaxed state, pleasure, laughter, and intoxication etc. (2&4). Factually body language is an involuntary action of body parts as physical expression. It does not have grammar like other languages and is broadly interpreted by other people (6&7). Physical expressions like waving, pointing, touching and slouching are all integral forms of non verbal communication (2).

Researches have shown that humans move their bodies when communicating as it makes the mental effort easy when communication is difficult. This movement of the body is termed as body proximity (10&18). The physical movements reveal many signs about a person like gestures can pass on a message or highlight a point, posture shows boredom or interest and touch can express care or support. It should be noted that some signs of emotions like smiling or laughing when happy and frowning or crying when sad, are chiefly universal. These basic emotions included a range of positive and negative emotions, and all of these are not encoded in facial muscles. According to Ekman, newly list of encoded emotions includes amusements, contempt, embarrassment, contentment, excitement, guilt, pride, relief, satisfaction and shame (2&4). Other than these physical expressions and emotions, body ornaments and embellishments are all extensions of our body language such as cloths, jewelry, sun glasses, hairstyles etc. Where certain colors and styles send signals, interaction of humans with their body ornaments also gives indication of relationship, and culture and religion origin. Like fidgeting with watch or ring, self preen and touching hair, are all body language cues (18).

3.   Principles of Interpreting Body Language

Reading body language or nonverbal cues has been noticed for centuries. It has become center of attention for researchers and practitioners in many fields such psychology and forensic investigation. For over twenty five years, it has been subjected to intensive scientific study.

Lawyers have just begun to realize the importance of reading body language or nonverbal behavior, and how long others have known. Reading body language is frequently used to understand people, their perception, nature of communication and relationship between them (1, 2&7).

Humans use many forms of deception using facial expression as it is a very complex and easily manipulated form of communication. To detect deceptive behavior, depends largely on the ability of investigators that how they observe and differentiate human behavior. Cluster of behavior which supports the deceptive behaviors specific to the person interviewed, should be identified. Investigators should know how to formulate questions that could facilitate behavioral observations. Greater number of observations will result in greater probability of detecting deception (11&13). Few things must be kept in mind to have an effective behavioral analysis or reading body language as following:

3.1. Understanding the Baseline Body Language

To read body language of a person, observers or investigators should understand the baseline body language they are interviewing. Knowing the reaction of a person in calm state will help to observe changes in body language when being questioned during an interview. However, if an investigator is unfamiliar with the interviewee, spending time and discussing non threatening topics would help to understand the baseline behavior and communication style of interviewee for later comparison when the situation becomes more intense (17&22). Like some people are proverbial open book while some are not easily decoded (3&13). Behavior and interpretation of behavior can be affected by the influence of culture and ethnicity. Environmental circumstances and situations can also influence on the display of the communication being surrounded. Therefore, it is very significant to observe the clustering of behaviors as it tells more than a single reaction and visualizes the magnified behavior carefully that would help to decode it (10&3). These behavioral samples can be used by inexperienced investigators as reference for comparing with deceptive behaviors (13).

3.2. Watch for Nonverbal Cues

Nonverbal cues can identify a person if being deceptive. According to experts, one such most common cue is doing something to give time to think of an answer. For example, coughing or taking drink. That few seconds the person takes to cough or drink, gives him/her sufficient time to come up with an answer that might not be truthful (5&6). Other signs/cues that show state of being not completely truthful are shifting seats, not being able to make eye contact and all that body language that disagrees with words such as nodding head yes while saying no. In this situation, interviewers should be careful and trained to read body language because it is very risking to assume a person is lying only if he or she takes time to drink/cough. In over all investigation, body language should be data point and combined with all other relevant information to make a decision (17).

3.3. Gaze at Facial Expressions

Face is the index of mind and facial expression conveys more signs than other part of the body (2). Face is an important reference point to interpret nonverbal cues. It is common courtesy to look someone in face when speaking so face receives a lot of attention. Facial statements are more verbose than the words being spoken for those people who believe on what face tells rather than what they hear. People commonly look in the face and eyes for deception cues if they suspect any falsehood (1, 2&4). A wise liar can control his facial expression but one can still pick up important nonverbal cues by paying close attention to face (1, 14&19). One can put on fake smile on his/her face when actually feeling unhappy or holding up a blank face when panicking internally. It is possible that people would see these falsified expressions but traces are always left behind on the face which cannot be erased even how a liar is good to manage his/her facial expression. These invisible facial changes are significant and last only for less than 10-15 seconds, called micro expressions. One within criminal justice system, either a police officer or investigator or a District Attorney should be trained enough to read these timely facial expressions and body language (1&15).

The face and short facial gestures or micro expressions are the window to the soul. Every

human makes micro expressions when they feel intense emotions. Micro expressions are essential part of the body language and we are pinched to understand someone's hidden emotions by looking and observing the face. Research studies found that while making the facial expression, we may begin feeling the emotion ourselves. Thus, not only emotions cause facial expressions but facial expressions can also cause emotions. According to psychology researcher Dr. Paul Ekman, there are 7 universal micro expressions which are widely used and easy to interpret (18&30) as following:

3.3.1. Surprise Micro-expression

Surprise look lets know others what exactly we are surprise about. In surprise state, the eyebrows are raised and curved, horizontal wrinkles are formed across the forehead, white of the eye becomes dominant and eyelids are opened, skin below brow is stretched, jaw is open without tension or stretching of the mouth (14,15,20&30) as shown in following facial expressions:

Figure 1: Surprise Micro-expression (30).

1.1.1. Fear Micro-expression

Fear is the state of being scared and closely similar to shock. It indicates to see any threats nearby. When a person is scared, the mouth opens, the eyes widen, and it prepares for a state where one may need to shout for help and to breath in a large amount of oxygen which will be helpful to fight enemy or to run away. As said earlier that not only emotions cause facial expression but facial expression also causes emotions (14&15). Similarly, if seeing someone frightened, we may have been frightened too. Fearful facial expression is the result of activity that takes part in amygdale, a part of our brain. Fear expressions included; eyebrows are raised and drawn together in a flat line, wrinkles are formed in the center between the eyebrows,

upper eyelid is raised and lower lid drawn up in tense state, the upper white of the eye is showing, mouth is open with lips slightly tensed or stretched and drawn back (20&30) as in following facial expressions:

Figure 2: Fear Micro-expression (30).

1.1.1. Disgust Micro-expression

Disgust expression appears when smelling something bad or hearing something nasty. In disgust behavior, the eyes are squinted which helps to increase visual activity and to find the origin of disgust. In disgust expressions, eyes are narrowed, upper eyelid, upper lip and cheeks are raised, upper teeth are exposed, and wrinkles are formed on nose (20,21&30) as shown in following expressions:

Figure 3: Disgust Micro-expression (30).

1.1.1. Anger Micro-expression

People with angry facial expression are found less trustworthy. In angry expression, the squinted eyes and lowered eyebrows makes it harder to see the window to the soul, and leads to lower level of trust. People genuinely angry may try to hide their angry expression in social situations therefore anger is stronger social norm violation than any other negative emotions like sadness. However, researchers found the angry expressions are fastest to be detected thus helping to avoid possible physical harm. Angry expressions are with lowered and drawn eyebrows with vertical lines between them, wide or bulging eyes, lips pressed together with corners down, jutting of lower jaw and dilated nostril (20, 21&30) as in following angry expressions:

Figure 4: Anger Micro-expression (30).

3.3.5. Happiness Micro-expression

Happiness expressions show positive and negative feelings and emotions just like a smile on our faces when meeting someone shows interest as a positive sign and turning face to opposite side shows a negative sign. A broad smile during communication expresses comfortable position. Smile is an important nonverbal facial cue. There are more than 50 different types of human smiles and over 80 facial muscles are involved in smiling (2&4). Researchers analyze movements of these facial muscles to tell when a smile is true or fake. A smile is probably fake if it uses only mouth as shown in figure 5 (a) while it is genuine when engaging the whole face as shown in figure (b) (2&19). Genuine smile shows that the person is happy and a fake smile is just to convey pleasure but actually showing that the person is feeling something else (19). Half smile engages only one side of the mouth showing sarcasm or uncertainty, tight pursed lips indicate displeasure whereas relaxed mouth indicates positive attitude and mood (19). Other happy micro-expressions included are lips with corner drawn back and up, parted mouth with exposed teeth, wrinkles running from outer nose to outer lip, raised cheeks, lower eyelid with wrinkles, and crow's near the outside of the eyes indicating genuine smile (20,21&30) as shown in following expressions:

Figure 5: Happiness Micro-expression, a) genuine smile & b) fake smile (30).

3.3.6. Sadness Micro-expression

Sadness is one of the hardest micro-expressions to fake and to correctly identify because it is not very large or noticeable. Similar to surprise,

sadness is one of the longer-lasting micro-expressions that even a resting sad face can be developed. This facial expression is a key way to calm down those who are angry. Sadness expressions include contracted and raised inner eye brows, skin below the eyebrows is up with inner corner and triangulated, lip's corners are drawn, lower lip pouts out, and raised jaw (15,20,21&30) as in following expressions:

Figure 6: Sadness Micro-expression (30).

3.3.7. Contempt/Hate Micro-expression

Contempt is similar to hate and is a negative feeling of dislike, disrespectful or being offensive towards someone. It is the only micro-expressions which is asymmetrical. It gives the feeling of superiority over another, and rightness and bad impression of someone being contempt. In contempt behavior, mouth is raised from one side (15, 20, 21&30) as shown in following expressions:

Figure 7: Contempt Micro-expression (30).

3.4. Read the Eyes

Of human morphology, eye can be very informative behavior that communicates more than any other part (19&20). It is the most important expression that communicates when the brain conducts internal dialog, recalling past events, crafts answers or processes information (13&19). Eyes give the revealing and accurate communication signals as they are a focal point on the body (2&19). When evaluating body language or nonverbal communication, pay attention to the following eye signals:

3.4.1. Eye Gaze

Observe the person either making direct eye contact or looking away. Direct eye contact

during conversation indicates interest and attention. While making indirect eye contact by looking away or to the sides indicates disinterest, boredom or deceit. On the other hand, looking down is an indication of nervousness or obedience. However, direct eye contact for a long time can feel threatening. Breaking eye contact and repeatedly looking away is a sign of discomfort, distraction and a try to conceal the feeling (19, 20&21). Most of the investigators heavily rely on eye contact and researches show that frequent liar actually increases eye contact because they learned that investigators determine the truth or genuineness by strong eye contact (12&13).

3.4.2.   Pupil Size/Dilation

Pupil dilation shows the favorable response or focus towards someone or something being liked. It is difficult to detect the dilation but under the right condition one should be able to spot it. In normal condition, light level controls the dilation while emotions can also cause changes in pupil size. Such as a phrase 'bedroom eyes' is used to describe the look that a person gives when attracted to someone. Similarly highly dilated pupil indicates interest or arouses (19, 20&21) as shown in following figure:

Figure 8: Pupil Dilation (21).

3.4.3.   Blinking

Blinking of the eyes speaks about internal ongoing conditions and it is increased when people think more or are stressed. Increased blinking rate accompanied by touching mouth and eyes indicates lying (19&20). Usually rapid eye blinking or eyelid flutter indicates a sensitive topic as shown in figure 9. Officers should be careful while observing the speaker's eyes as they alert deception chances (2&13).

Figure 9: Eye blinking (20).

3.4.4.   Glancing

To glance at something suggests a desire for that thing such as glancing at the door indicates a desire to leave or glancing at a person shows a desire to talk to him or her. During conversation, looking upwards or to the right indicates a lie while looking upward but to the left indicates the truth. Looking upward and to the right gives them time to concoct a story using their imagination, and looking upward and to left gives time to recall an actual memory (19&20). Different glancing is shown in following figure:

Figure 10: Eye glancing (20).

3.5.   Mouth and Breathing

People attempt to breathe faster with series of short breaths followed by one long deep breath when they want to conceal information. This irregular pattern indicates increased anxiety level of the speaker to the investigator (11&12). Stress causes dry mouth which leads to frequent clearing of throat, cracking of the voice, jumping of the Adam's apple or laryngeal cartilages, a feature of human neck. Similarly, a tense mouth with pursed lips indicates extreme distress which signifies that speaker is preventing him/herself emotionally, verbally and physically (13&21) as shown in following figure:

Figure 11: Pursed lips (21).

3.6. Watch the Head Movement

Head is the first and foremost part of human body that moves to indicate the presence or absence of patience in a speaker. Slow move or nodding indicates interest and spirit to continue talking while fast nodding indicates that the speaker has enough talk or he/she wants to finish speaking or wants him/her turn to speak (2&3). Tilting head sideways shows sign of interest or disapproval or negative mood of speaker, tilting backward shows sign of suspicion or uncertainty, and up and down side shows sign of friendliness and receptive mode. Keeping head straight and level both vertically and horizontally indicates confidence or assurance or sign of authority (12). Pointing head towards people also shows feeling of an affinity. Many researches and brain imaging show that emotions expressed by dynamic head as compared to faces, bring out greater activation in social corner of the brain (13&19).

3.7. Look at Arms and Legs

The arms and legs movement can also be helpful in signaling nonverbal information. An arm crossing is a sign of being defensive and a leg crossing away from a person is an indication of dislike or discomfort. Slight expending of the arms widely is an attempt to look more commanding while keeping them close shows an effort to withdraw from attention (2&3). When evaluating the body language, pay attention to the following arms and legs signals:
- Moving legs around a lot shows the signs of nervousness, stress and deceptive.
- Keeping of one leg ahead and the other in loose position is a sign of leisure environment.
- Crossed arms and legs indicate cold response or reaction.
- Sitting position in which legs are kept over another, is an indication of being ready for a reaction, and shows authoritativeness.

- Sitting on chair and keeping legs over one another with back touched on chair, shows comfort and relaxation as in following figure:

Figure 12 (a): Different legs positions (20).

- Placing hands on the hips in standing position is a sign of ready, control or aggressiveness as in following figure 12 (b).
- Holding hand behind the back can be an indication of feeling bored, anxious or angry.
- Tapping fingers repeatedly or fidgeting shows that a person is impatient or frustrated (13, 19&21).
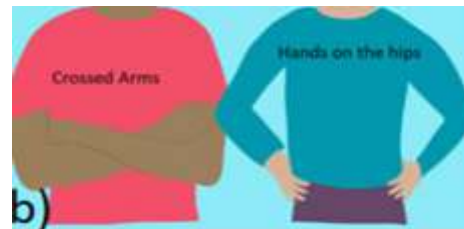

Figure 12 (b): Different arm positions (21).

3.8. Pay Attention to Body Posture

Posture refers to how one holds body or overall physical form. Body posture serves as an important part of body language by conveying volume of information about feelings and personality characteristics such as confidence, openness or submissiveness. Postures are most reliable of all nonverbal signals to read deception because these are consciously less controlled than other signals (2,12&21). Sitting up straight indicates that the person is focused and pays attention to what so ever is going on. On the other hand, sitting with body curved forward can mean that the person is indifferent or bored. When understanding a body language, try to observe the signals that a person's posture can display as following:
- Open body posture is holding trunk or body chest open and exposed indicates friendliness, openness and willingness.
- Closed body posture keeps the trunk of the

body curved forward, and arms and legs crossed indicating hostility, unfriendliness, and anxiety as shown in following figure (2&21).

Figure 13: Closed and open posture (21).

3.9. Body Proximity

Body proximity defines the body movement in space and the distance between two individuals. Body movements are instrumental body language cues by giving signs of preferences and nervousness (1, 18&19). Close proximity is level of physical distance (6-18 inches) which is best indicating close relationship or greater comfort between the individuals usually during intimate contact like hugging, whispering or touching. Personal distancing (2-4 feet) shows bonding between family members or close friends with affinity and intimacy as shown in figure 14. On the other hand, social distancing is backing up or moving away from someone when comes closer indicating that connection is not mutual. Proximity is not always an accurate sign of affinity with someone because some cultures prefer less or more distancing during interaction (4, 19&21).

Figure 14: Body proximity or individual distancing (20).

3.10. Watch if Someone is Mirroring You
Mirroring is the mimicking or copying other person's body behavior when interacting.

Mirroring someone body language is a sign of comfort and establishing a bond with that person as expressed in following figure 15. Such mirroring signs include taking sips of a drink at the same time with the other person and copying the other person who is sitting at a table and resting an elbow on the table (3&19).

Figure 15: Mirroring (19).

3.11. Watch for Pacifying Behavior

Investigators should not be convinced of any one cue or reaction being an absolute sign of deception as there are many theories and myths. There are certain signs of anxiety that may indicate signs of lying when occur together. These physical signs of anxiety are also known as adaptors used to relieve stress as following:

- Internal adaptors show crossing and uncrossing of arms/legs.
- Object adaptors indicating signs of dissipating anxiety by picking up objects and putting them down when the discussion/conversation turns to a comfortable point.
- Self adaptor shows signs of touching body or face (12&23).
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3.12. Check the Answer, Timing & Voice Characteristics

Evaluate the nonverbal signs with verbal answers. Notice if a person is using harsh or soft terms, answers extended or focused, includes or omits him/her from suspicion, giving direct or non relevant answers to the questions. During interview or conversation, check the time and consistency either a person answering on time or taking time to think before answering or if thinking when he/she should not. Observe voice tone if it goes up or down or remains medium.

Notice the speech if it is clear or mumbled and when accused voice remains neutral or volume increases (12&22).

4. Documentation of Body Language

Documentation is a key to record and pay attention to a body language during an investigation or interview and is as important as listening to verbal cues. Noticing body language when talking can help investigators to understand the whole picture. Such as recording of previous body language interview during an investigation with multiple interviews, helps to understand the focus areas in later interviews (11&12). Making notes about devious eyes or hesitation before answering, results another data to think in the overall investigation. Sometimes verbal answers are not definitive as whether someone is being deceptive or not but paying attention to nonverbal cues is indicating that more questions should occur. Observing and picking up these hints can help to understand their role in sketching the overall depiction which will make the decision in the next step (17, 28&29).

5. Effects of Gender, Social and Economic Status on Body Language

Gender differences can have influence on body language in humans which can be noticed at every state of behavior. It is believed for females that they show signs of higher sensitivity to nonverbal cues. Females with or without Asperser's syndrome characterized by significant difficulties in social distancing and nonverbal communication, are more adept than males in discriminating and recognizing facial emotions and friendliness from sexual interest. In contrast to males, females tend to better recognize emotions from facial expressions than from voices (2&5).

Social and living standard can affect verbal and nonverbal behavior. A rural person way of using body language differs from that of urban area such as rising of hands, walking and movement of body. According to researchers, such behavior may be the reason of poor standard in rural person and superiority complex in an urban person. On the other hand, body language of economically sound person is authoritative as compared to economically unsound person who gives a sign of request (2).

6. Forensic Application of Body Language

As a single body gesture cannot be interpreted apart from overall interaction therefore an experienced and trained investigator or interviewer should observe the whole conversation by picking out cues to focus upon. Areas where discomfort or possible deception observed can lead the interview to a focus point (3&29). In an interview where spoken words are important, nonverbal behaviors also give much information, if not more. Using this knowledge, law enforcement agents can successfully interview the suspects, victims and witnesses. While setting up and conducting an interview, it should be a planned, conscious and even a rehearsed event to extract most effective information. Additionally in the court when agent testifies, officers should be aware of their behaviors and the judges and juries should also interpret behaviors they see (3, 25&28).

Researches, seminars and workshops are constantly being conducted on nonverbal behaviors to develop this skill with devoting professional journals and books. One may spot a liar by paying close attention to physical behavior. According to a German philosopher 'Friedrich Nietzsche' who wrote that 'the mouth may lie but the face it makes nonetheless tells the truth'. Devices are available to detect lies such as the polygraph that detects the stress about the lie but not the lie. By doing so it can miss the most dangerous liars who don't care when they are lying thus showing no stress during a polygraph test (3, 26&27).

7. Conclusion

It is concluded that body language is a mean of interaction and mirror of personality development in society. Body language can be helpful to read mentality of people for a successful interaction. It gives cues about mental attitude, physical fitness and ability of people, and their intention. Healthy perceivers can discriminate between deceptive and true information from body movements for better understanding of people. As the clues are left on the crime scene, similarly clues are left on the face of the guilty person who is trying to assert his/her innocence when close to being discovered. These clues can be in various forms either as frowns on forehead or movements of

arms. It is possible that an innocent person may engage the nervous behavior as those who are actually lying. Therefore, it is important for law enforcement professionals to have training in interpretation of body language and facial expressions to properly identify the real culprit for the well being of our society. With increased interest and application of training in this field accompanied with criminal justice system, is a lead to a room in the future of criminal investigation for a field which is as fascinating as its importance.

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