Chin Up, Shoulders Back: An Examination of Body Language in Authority Figures

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Abstract

This study was designed to investigate how body posture of authority figures can affect the perceptions of people in a subordinate position. In this experiment, an actor was recorded giving directions for how to solve a puzzle in three separate postures including confident, neutral, and submissive. The actor was deemed the title of researcher to give him an authoritative position. Participants viewed the video, completed the puzzle, and filled out a survey on the authority figure. The results of the survey conclude that when the neutral and submissive postures are compared, the neutral position is significantly preferred.
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Introduction

When we communicate with others, the words we speak are not the only thing being processed by others. Our body language influences how others perceive us. It can either enhance or hurt our relationships, depending on the type of language that is used. This is why it is important to be aware of the type of messages we are sending to others. Nonverbal communication is a part of all social interactions, whether it is with people we are familiar with or strangers and in a variety of places such as home, school, or our place of work.

Body language has intrigued many scholars and has been a subject of research for many years. Since 2000, over 400 peer-reviewed research papers have been published with Body Language in the title and over 9,000 with this term somewhere in the text. The range of topics covered varied greatly including body language and gender, measuring movement in body language, body language in medical consultation, and many more. A study by Carney, Cuddy, and Yap (2010) recommend “Faking it till you make it” suggesting that by adopting spacious body postures one can increase their sense of self-confidence. The connection between the mind and the body can go either way. When we feel a certain way, our bodies express it outwardly. This study concludes that expression works in the reverse sense by forcing oneself into a particular posture, our brains physically react by releasing or withholding particular hormones that can affect how we physically feel.

Our body postures can change our self-perceptions but they can also have a powerful effect on others. Adopting a “confident posture” could change how others listen and respond to, or interact with us. For example, if a manager puffs out their chest and splays their feet on their

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1 Based on a PsychINFO conducted on 2/12/2016
desk, it may evoke a particular reaction from others. On the other hand, if a manager sits at his
desk with his head down and rarely makes eye contact with his employees, it may create a
different reaction from others. The purpose of this project is to investigate how posture can come
into play with particular social interactions. While some postures may enhance a message that is
being portrayed both verbally and nonverbally, others may weaken it or evoke undesirable
sentiments from the party that is being communicated to. This study will examine perceptions
people may have when someone in a position of authority uses dominant, neutral, and
submissive postures and connect the findings to the workplace environment.

**Scholarly Analysis of Body Language and Posture**

Darwin’s Contributions

The scholarly story of nonverbal communication begins with Charles Darwin and the
publication of his book *Emotion of Expressions*. Throughout his research, Darwin examines how
and why humans make expressions. He attributes some of our reactions to emotions as survival
mechanisms suggesting that communication is crucial for us to understand one another and
ensure our safety. He also suggests that there are innate heritable systems linked to the
expression and understanding of non-verbal communication patterns. These emotional and
expressive systems are consistent in all humans, regardless of age, gender, race, culture. All
humans show similar emotions. For example, when a baby smiles and laughs it contorts its facial
muscles using the same muscles as an elderly man. These emotions can be evidently seen in any
person.

Darwin noted a mind-body connection that influences how external stimuli could cause
bodies to have a physical and emotional reaction. He explained the process by saying, “The
heart, which goes on uninterruptedly beating night and day in so wonderful a manner, is extremely sensitive to external stimulants… the least excitement of a sensitive nerve reacts on the heart… Hence when the mind is strongly excited, we might expect that it would instantly affect in a direct manner the heart… the state of the brain again reacts through the pneumogastric nerve on the action and reaction between these, the two most important organs of the body…” (303-304) Darwin theorized that the human body experiences a direct effect of the given occurrences that happen around it. Once our bodies take on this effect, our brain responds by regulating our body, giving off these physical reactions. He gives initial examples through the expression of pain saying, “… I have plainly heard the grinding of the molar teeth of a cow which was suffering acutely from inflammation of the bowels… With man the eyes stare wildly as in horrified astonishment, or the brows are heavily contracted. Perspiration bathes the body, and drops a trickle down the face. The circulation and respiration are much affected. Hence the nostrils are generally dilated and often quiver; or the breath may be held until the blood stagnates in the purple face” (304). These reactions are a byproduct of the experience of pain and can be interpreted by others through simple observation.

Darwin closely observed a variety of expressions. He built on his observations by recording the physical appearance of expressions such as anger, sadness, and joy that he saw in different people. Darwin described the expression of joy as it, “leads to various purposeless movements- to dancing about, clapping the hands, stamping, and to loud laughter” (801). When we exude happiness, we often show these large expressions, we spread our arms wide and create excited movement. The instances of happiness that Darwin used are easily recognizable and are expressed by nearly everyone. On the other hand, sadness entails many distinctive characteristics of the face. Darwin noticed, “the eyes become dull and lack expression, and are often slightly
suffused with tears. The eyebrows not rarely are rendered oblique, which is due to their inner ends being raised. This produces peculiarly-formed wrinkles on the forehead, which are very different from those of a simple frown; though in some cases a frown alone may be present. The corners of the mouth are drawn downwards, which is so universally recognized as a sign of being out of spirits, that it is almost proverbial” (701). The observations that Darwin made are still visible in people today when showing sadness, joy, or any of the other expressions discussed. He also mentioned the universality of emotion, meaning it can be applied to every human being, regardless of culture or upbringing. These expressions are a common part of life, everyone has shown these expressions in a similar form.

Body Language and Posture

When we communicate with others, there are two messages that are being sent to the second party. The image on the right shows what happens when someone sends a message to another person face-to-face. The solid oval represents the verbal message being sent. Simultaneously, the nonverbal message (the dotted circle) of the communicator is also received, but it is possible that it is not interpreted or even misinterpreted by the receiver, hence why it is a broken circle. In either case, the nonverbal message is not as clear and certain as the verbal message being communicated. If the nonverbal message is picked up on by the receiver, it can influence their interpretation of the overall message (verbal message included) being sent by the communicator. For instance, if person A were to ask person B how his day was and person B responded by saying, “Great!” but kept his shoulders slouched and his head down, person A may not believe him. This is because
the verbal message of having a good day was not congruent with his body language, which showed he was experiencing negative emotions. We use nonverbal communication to influence how we perceive others along with the statements they make. The nonverbal message can be sent through a variety of different forms including tone of voice, gesticulation, facial expression, physical space, posture, and many more. These cues can enhance the verbal message as well as show us what the communicator is currently feeling.

When an individual conveys a nonverbal message, whether the message is genuine or forced, it has an effect on that person. One famous example comes from an experiment carried out by Carney, Cuddy, and Yap (2010) in which participants were directed to sit and stand in certain positions. These researchers aimed to find a connection between the feeling of power and placing oneself in these “power poses”. Carney stated, “It is unequivocal that power is expressed through highly specific, evolved nonverbal displays. Expansive, open postures (widespread limbs and enlargement of occupied space by spreading out) project high power, whereas contractive, closed postures (limbs touching the torso and minimization of occupied space by collapsing the body inward) project low power”. Carney placed participants in these as well as neutral postures for a duration of two minutes. Afterwards, the participants’ cortisol and testosterone were taken and compared to samples taken earlier from the same subjects. Findings showed a significant increase in testosterone (a hormone associated with power) and decrease in cortisol (a hormone linked to stress) in the subjects. Participants were also instructed to make a wager in a small gambling game. When compared to the participants who displayed low-power poses, those who used high-power poses were significantly more confident in their decisions when gambling. These results indicate that these “power poses” have a direct, physical effect on the subjects when they placed themselves in these positions. This study shows that posture can
have a biochemical effect on the individual. When Carney’s subjects splayed themselves out to promote confidence, their levels of testosterone rose and cortisol dropped, meaning a series of neurological processes occurred when the individual’s body took on a voluntary pose.

William Flack (2006) supports this idea by demonstrating how forcing oneself into postures that are not necessarily congruent with their emotions can change their physical state. In this experiment, Flack examined the effects of peripheral feedback when exerting a variety of physical expressions. Participants were given a set of directions for how to sit in their chair with postures that expressed either anger, sadness, fear, or happiness (without the subjects’ knowing the true nature of the experiment). Afterwards, participants rated their feelings of anger, sadness, fear, happiness, disgust, and surprise. Findings showed a significant connection between the position in which the subjects were seated, and what feeling the subject indicated on the survey afterwards.

The manipulation of body language affects the mental processes and emotions of an individual. The simple action of how people position themselves is not a one-way street in which people simply portray how they feel by their postures. Directly manipulating postures can enforce one’s sentiments at that moment. Body language deeply impacts the individual and is not simply a channel to convey how one feels, but rather how the body and the mind are interconnected when it comes to expression. By seeing how great of a connection body language has within ourselves, it is important to think about how it can influence others.

Perception of Nonverbal Behaviors

One of the reasons we use body language is to communicate our feelings to others. Often, our nonverbal behaviors can influence the perceptions others may have towards us. Perception is
the process in which stimuli are recognized and interpreted to allow us to make better sense of our world. For example, when you look at an apple, you would be able to quickly identify it. You know that it’s a fruit, it’s edible, and that it can come in different colors; you may even have memories of picking them in the late fall when you see one. Past experiences have helped us learn about this object and can influence how we see them. The same idea can be applied to body language. If you were to see your boss stomping into the room with their shoulders hunched forward and a scowl on their face, you would likely realize that they are angry. Depending on your experiences with your boss and how well you know their personality, you may be inclined to ask what is wrong or know to stay away until they cool off. By seeing your boss portray this type of behavior, you are able to judge his feelings based on your perception and interpretation of his nonverbal communication. This example also demonstrates that when we perceive body language, it can influence our own thoughts of that person and even help determine how we will interact with someone.

Research has examined how people perceive the body language of others by studying their reactions and feelings towards someone who emits a nonverbal message. Willis, Palermo, and Burke (2011) examined how certain poses and expressions affect the approachability of a person. In this study, pictures of figures showing anger, confidence, and neutrality had their heads isolated from their bodies. The participants were given the situation of being in a crowded street and determining whether or not they would approach the body they were presented with and ask for directions; after they provided their answer, subjects were asked what emotion was being displayed by the body. Findings showed that the neutral body was more approachable than the body that showed confidence.
Dominance is a form of expression that can be exerted through body language. The ape can puff out his chest to make himself appear larger and more powerful to promote his top status in the hierarchical position. The dog can splay out its legs to take up more space to show its power. Humans are no different as we display dominance in particular postures of our own. Burgoon and Dunbar (2006) stated, “Whether it is establishing a pecking order or a marching order, proclaiming privileges or prohibitions, exercising leadership or intimidation, humans, like other mammals, have evolved intricate means of signaling in any social encounter who are “one up” or “one down”…”. Our species has maintained particular postures and gestures that show who is in a position of power. Certain splaying and relaxed gestures indicate how levels of fear and displays of social dominance. On the other end of the spectrum, there are appeasement gestures that are more associated with submissive characteristics. Those that involve making oneself smaller and show shame or modesty indicate a low status. Burgoon and Dunbar describe specific strategies used for power/dominant individuals. These can be split into three categories: Physical Potency, Resource Control, and Interaction Control. Physical Potency entails the visual characteristics that someone poses through their size, level of expressivity, and how threatening they appear. Threat is an important facet within physical potency because it can intimate how strong of a fighter the person of power is. Size can show the level of weight density one has and how quickly they can put their opponent down. The authors also note that expressivity is key when exerting dominance. A high level of gesticulation and tone can show the level of energy one has and in this case, the more expression there is, the greater the energy one can bring to a fight.

As mentioned earlier, posing with confidence can promote positive results for the individual. This yields the question, how do others perceive someone holding a dominant
posture? Furley, Dicks, and Memmert (2012) examined how soccer players who were preparing for a penalty kick were perceived by other players. In this experiment, actors were filmed performing the kick using either dominant or submissive postures. Participants observed one of the two videos and then completed a questionnaire asking them to rate the player in the video on a series of characteristics, such as power of the penalty kick, accuracy of the penalty kick, and expectancy of success. Findings showed participants had a more positive impression of the dominant kickers and thought they provided a significantly more powerful kick. This study shows how using dominant language can produce more positive perceptions of the individual. Instances of dominance appear as instinctual responses in the competitive setting as people use their physical energy to succeed over others. In the case of this soccer study, dominance was positively perceived by other players.

Carney, Hall and LeBeau (2005) examined the expected nonverbal cues those of high power and low power positions exert. In this experiment, participants were asked to read one of twelve scenarios in which there were a combination of possibilities involving an interaction between a combination of either two males, two females, or one male and one female that were designated with high or low power positions. The subjects then rated the individuals on a variety of nonverbal behaviors including detection, distance, facial expression, hands and arms, head, legs and feet, posture, qualities of behavior and vocal behavior. These vignettes were chosen because there are specific associations of high and low power between these nonverbal behaviors. They also have a different effect when coming from either a male or a female. Findings showed that the participants believed high power individuals would engage in more touching and be the initiators of hand shaking. It was also believed that these high power figures displayed more negative emotions such as facial disgust, anger, and glaring. High power figures
were also rated to display more upward tilting of the head and use more head-shaking gestures. These beliefs show that high power figures were thought to be more likely to show more emotion that could appear threatening. This could be explained by making an establishment of dominance over a low-power individual. The negative feedback expressions such as glaring and disgust could also put fear into the low-power individuals, hence creating a distance in hierarchy between the two figures.

Perceptions of an individual can be influenced by posture alone. An investigation by Maurer and Tindall (1983) examined how posture congruence can affect a client’s perception of their counselor. In this case, participants were asked to have brief, fifteen minute sessions with either a male or female state certified psychological counselor. The participants were either paired the same or different gendered counselor. The counselor also either mimicked the arm and leg postures of the subject or they did not. Findings showed that the level of postural congruence could influence the perceived empathy that the counselor gave towards the subject. This finding could be applied to the thought-process of dominant figures as well since they actively tend to show a different posture that is wider or more confident than those that they are interacting with.

Even though confidence and dominance are not synonymous, they often are expressed by similar body postures. For instance, in the Carney, Cuddy and Yap study, participants were asked to place their hands on their hips and stand with their feet apart as well as a slightly puffed out chest and their chin in an erect position (2010). This posture was deemed “confident” in their study. An experiment by Furley, Dicks, and Memmert (2006), soccer players were asked to walk with an erect posture that had their shoulders back with their chest out, legs spread apart, and chin held high and was considered “dominant”. Both of these representations are very similar and show that by acting out in a dominant sense, we gain the physical effects of confidence. In
the case of this study, the posture that is used is described as “confident”, but it can also be interpreted as dominant.

These studies were provided as evidence to show how humans express emotion and why they do so. Through Darwin’s observations, it can be concluded that we show emotion for evolutionary and communicative purposes. Studies by Carney, Burgoon, and others show how body language can influence ourselves and others, whether it is forced or natural. This study aims to determine how postures in authoritative figures may influence subordinates’ feelings on a variety of characteristics including friendliness and leadership ability. In this experiment, subjects watch one of three videos instructing how to complete a puzzle. Even though the directions remain the same, the posture of the instructor changes between a confident, neutral, and submissive tone. The participants completed a survey that allowed them to rate how they felt about the instructor in a variety of qualities. It is hypothesized that the video showing the instructor who displayed a confident posture will be rated most highly and will be preferred over the neutral and submissive videos.

Nonverbal Communication within the Workplace

Body language is not exempt from the social interactions of the work place. It is key to determining the dynamics between employees, superiors, and even clients. In organizations, body language plays an interesting role through the combination of nonverbal displays, feedback, and interpretation. The same model of communication (referring back to Figure 1) can be applied to organizations as with any other social context. If your boss speaks to you and your coworkers in a meeting and speaks with his voice trembling, keeps his shoulder down, and does not make a lot of eye contact, you may interpret his body language as nervous. This could change your
perceptions of this superior. Body language like this example can affect the overall emotions people feel in the workplace and how they perceive others.

Increasingly, nonverbal communication in organizations is perceived as influential and has generated additional research. Beginning in 1967, Mehrabian suggested that “…facial expression, body movement, and voice tone can make up 93% of the ‘attitudinal’ message to the receiver”. In other words, when people converse, much more is picked up on than just what is being said. Graham, Unruh, and Jennings (1991) administered surveys to thirty different organizations throughout the Midwest and had five hundred and five usable participants. The subject pool consisted of a variety of workers, including top level executives, middle managers, supervisors, and regular employees. The survey asked participants about the importance of nonverbal communication and how well the subjects believed they could interpret this type of communication. Results showed the participants believed nonverbal communication was significantly important in group discussion and while working on a one on one basis. With such a large sampling pool in a variety of different jobs, it can be concluded that people generally view nonverbal communication as an important channel of expression within the work place.

In the scope of everyday nonverbal expression, there are many different possibilities that people can experience in a variety of interactions. Remlend (2006) noted, “Most research findings on the uses and consequences of nonverbal communication in formal workplace interactions, such as customer service transactions, interviews, and oral presentations, converge to construct nonverbal involvement behavior. Gaze, body orientation, facial expressiveness, gesticulation, head nods, and vocal animation, and more indicate the degree to which a person is overtly involved in an interaction…” (512). All of these nonverbal cues can influence the
relationship between employees (or clients) in a workplace. Just like with any other type of social interaction, organizational conduct strongly consists of this type of communication.

Nonverbal cues can also influence the opinions of a superior. A study by Degroot and Motowidlo, determined that use of nonverbal cues correlated with how a participant would be rated in a performance review (1999). When people display positive body language, they can appear more approachable or friendly. This study demonstrates how displaying certain gestures can promote likeability. Giving off the perception of approachability or friendliness can help or hurt the company; while some may gain more trust in a superior who gives these signals, others may think they are too laid back and take advantage of them.

Nonverbal communication patterns play an important role in understanding interpersonal businesses dynamics. Researchers have demonstrated the importance of nonverbal communication and have reminded us that we should be aware of the messages we may be sending when conversing with others in business. By applying these ideas pertaining to how body language can influence others in the work place, we can determine how the conclusions from this study on posture can be applied to organizations and how people may perceive different postures of those in positions of leadership or authority.

The Current Study

The current study seeks to expand on previous research by investigating how manipulating only the posture of an authoritative figure can affect the perceptions of the subordinates in a given situation. The postures in this study will include confident, neutral, and submissive postures. It is hypothesized that participants will perceive the authority figure using the confident posture more positively than the other two.
Methods

Participants

The subjects used in this study were Psychology 100 students. Subjects signed up to participate in this experiment using the SONA database, an online forum to electronically select and reserve a position in the study. These students signed up to earn their research credits required for the course. There were 33 total participants, three were dismissed after being unable to finish the puzzle required to complete the experiment, but were still awarded their research credit. The remaining thirty (ten for each condition) completed the puzzle.

Methodology

Materials

The Videos. Three videos were created for this project. In each, a male actor played a "researcher" who explained to the participants how to complete a task. The actor wore professional clothing to promote authenticity in his authority over the participant. The actor explained the rules and directions in the same exact script for all three videos, however, his posture varied in each video. The actor used confident, neutral, and submissive postures. The confident posture (see Figure 3) consisted of having his head held slightly higher with his chin upward, shoulders back, legs and feet parted, along with the use of gesticulation (using his hands to enhance the message) while speaking. The neutral posture (see Figure 2) had the actor’s head at a parallel level with his shoulders and chest in a comfortable position, legs and feet were closer together, with his hands resting on his lap. The submissive posture (see Figure 4) had the actor’s head and chin pointed downwards, his chest sunken and shoulders pointed inwards, hands resting closely at his waist, and legs crossed.
**The Task.** The puzzle that subjects used is called Quadrillion (see Figure 5) and consists of four squares that can be flipped to a black or white side along with twelve differently shaped, colored pieces. A small booklet is provided that gives a series of partially finished puzzles that the player must complete by arranging their provided pieces to match the assigned puzzle and filling the entirety of the puzzle with the pieces in a particular manner. To solve the puzzle, the participant must arrange the board to match the one in the picture. They must then place the puzzle pieces in their positions to match those shown in the image as well. When their puzzle board reflects the one in the desired image, they begin solving the puzzle. The goal is to cover the board completely without having any pieces overlapping or hanging off the edge of the board. The puzzle is solved once the board is filled in properly.

**Affect Grid**

The affect grid (see Appendix) consisted of a series of a grid of boxes and two axes, one ranging from “sleepy” to “high arousal” and “unpleasant feelings” to “pleasant feelings”. Participants indicated how they feel by placing an x in one of the boxes. This allows them to specify their exact state in terms of alertness and mood.
Dependent Measures

The dependent variable was a survey that subjects completed expressing how well the actor explained the directions, how articulate he was, how friendly he seemed, how efficient of a leader he was, how professional he was in explaining the directions, how pleasant he seemed and whether or not they would like him to be their manager. The survey used a Likert scale for each of the variables and chose a rating between one and seven with one being the least desirable and seven being most desirable. They also had the option to leave additional comments.

Procedure

Participants were randomly assigned to one of the three video conditions; confident, neutral, and submissive. Upon entering the testing room, participants completed a consent form (see Appendix). When the participants finished reading and signing the form, they were informed that the researcher was not actually present and would be seeing a video with him giving directions. Participants were then given an affect grid that would allow them to gauge how they were feeling in that moment. Once they had finished the affect grid, the participants watched one of three videos.

After watching the video, the participants were given another affect grid and told they could fill in the same or different spot, so long as that was how they were feeling to measure if the video provoked a new emotional response. When the subject was finished, they were presented with the puzzle along with a written guide of the directions in case they had any questions. The subjects told that the proctor would not give them any guidance while they solved the puzzle. The subjects were also told that they would be timed while completing the puzzle and that the clock would begin once they started the puzzle.
After the participants completed their puzzle, they were told their time. When the subjects finished the survey, they were given their debriefing form and were able to leave.

**Results**

A planned comparison T test was used to determine if there were significant difference in the three conditions: confident, neutral, and non-confident variables for the authoritative figure with the following characteristics: how thorough he was in his explanation, how articulate he was, professionalism, pleasantry, how effective of a trainer he was, and the degree to which the subjects would desire to have the authoritative figure as a manager. In a comparison between the neutral and submissive group (see Table 1), the actor in the neutral video showed significantly higher scores than the submissive video (p < .05) in how thoroughly directions were explained, how articulate he was, how professional the actor seemed, and how effective of a leader he was. This signifies that the group seeing the neutral video thought the actor was more articulate, professional, and more of an effective leader than the actor in the submissive video. A comparison of the mean scores for each posture can be seen in the following graph.
Affect Results

To determine whether or not there was a significant change in affect, a paired samples analysis was performed. By using the affect grid, participants marked their sentiments before and after viewing the video to see if there was a change in arousal (ranging from calm to excited) and pleasantry (feeling very depressed or extremely happy). The paired samples analysis was used for the confident, neutral, and submissive group. The findings showed a significant increase in arousal for the confident group after watching the video. Table two shows the average arousal for the participants for each group before and after the corresponding video. Table three shows whether or not there is a significant change after seeing the video in terms of pleasure and arousal.

Table 1
Posture Comparison of Survey Scores

<table>
<thead>
<tr>
<th>Posture Comparison</th>
<th>Confident vs. Neutral</th>
<th>Confident vs. Submissive</th>
<th>Neutral vs. Submissive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thorough</td>
<td>.712</td>
<td>.163</td>
<td>.021*</td>
</tr>
<tr>
<td>Articulate</td>
<td>.408</td>
<td>.343</td>
<td>.035*</td>
</tr>
<tr>
<td>Professional</td>
<td>.696</td>
<td>.145</td>
<td>.048*</td>
</tr>
<tr>
<td>Pleasant</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Effective Trainer</td>
<td>.421</td>
<td>.497</td>
<td>.107</td>
</tr>
<tr>
<td>Effective Leader</td>
<td>.593</td>
<td>.392</td>
<td>.033*</td>
</tr>
<tr>
<td>Desirable Manager</td>
<td>.536</td>
<td>1.00</td>
<td>.431</td>
</tr>
</tbody>
</table>
Table 2
Average Change in Arousal and Pleasure After Viewing Each Video

<table>
<thead>
<tr>
<th>Comparisons</th>
<th>Pleasure: Before watching</th>
<th>Pleasure: After watching</th>
<th>Arousal: Before watching</th>
<th>Arousal: After watching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pleasure: Before watching Confident video</td>
<td>5.800</td>
<td>4.700</td>
<td>4.400*</td>
<td>5.100*</td>
</tr>
<tr>
<td>Pleasure: After watching Confident video</td>
<td>6.200</td>
<td>5.600</td>
<td>5.000</td>
<td>5.100</td>
</tr>
<tr>
<td>Arousal: Before watching Confident video</td>
<td>4.400*</td>
<td>5.100*</td>
<td>5.000</td>
<td>5.100</td>
</tr>
<tr>
<td>Arousal: After watching Confident video</td>
<td>5.000</td>
<td>5.000</td>
<td>5.000</td>
<td>5.200</td>
</tr>
</tbody>
</table>

Table 3
Significance Test in Change of Pleasure and Arousal Between Before and After Viewing Videos

<table>
<thead>
<tr>
<th>Type of Video</th>
<th>T value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confident</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pleasure</td>
<td>2.012</td>
<td>.075</td>
</tr>
<tr>
<td>Arousal</td>
<td>-1.1107</td>
<td>.025*</td>
</tr>
<tr>
<td>Neutral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pleasure</td>
<td>.896</td>
<td>.394</td>
</tr>
<tr>
<td>Arousal</td>
<td>-.218</td>
<td>.832</td>
</tr>
<tr>
<td>Submissive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pleasure</td>
<td>1.998</td>
<td>.077</td>
</tr>
<tr>
<td>Arousal</td>
<td>-1.500</td>
<td>.168</td>
</tr>
</tbody>
</table>
Discussion

Based on the results of the survey responses, participants believed the authority figure who showed a neutral posture was significantly more thorough and articulate in explaining directions, professional, and more of an effective leader when compared to the scores of the figure who used a submissive posture. The rest of the data including comparisons between the confident versus neutral posture and the confident versus submissive posture concluded with no significant differences. The affect data results suggest that the individuals watching the confident video also showed significant increase in arousal, meaning they likely became more stressed or nervous.

The initial hypothesis of this study that the confident posture would score higher on the surveys than the rest was not confirmed. In some cases, the confident posture was given a higher rating than the submissive posture, but not enough to yield significant results. Due to the nature of the significantly increased arousal in the confident group, a possible explanation of these results could be that confident postures do not necessarily indicate a higher skillset of leadership (or similarly desired) qualities in the eyes of subordinates. While some may interpret confident postures as an indicator of these position traits, others may respond negatively toward figures who they perceive as overly confident. A confident posture could evoke fear or contempt towards the authority figure. By making oneself appear bigger, taking up more physical space, and using more open body language, it could be interpreted as menacing. The person interpreting the posture may see this person of authority as a threat when they are creating a large display of themselves. Some people may not feel comfortable with an authority figure and feel that he or she is too arrogant. However, the neutral postures were rated consistently higher than others, meaning people interpret this person as being more “on their level”.

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Possible Confounding Variables

It is important to examine a couple of issues that were noted throughout data collection. One of the biggest concerns was with the ratings participants gave. Many of the scores gave the authority figure very high ratings (often with perfect scores) regardless of what posture the participant viewed, which may have skewed the data. The option to leave comments was also left blank, with only four out of thirty participants choosing to leave additional commentary. It was observed that some surveys were finished very quickly and some subjects seemed anxious to finish the experimental session. This may be due to subjects not knowing the true nature of the study and the surveys not seeming that imperative to give closer reviews. It is recommended that in future studies the surveys are explained with more emphasis on the importance of the results and that participants should take their time when filling out these surveys. This could help participants consider being more critical when giving their responses.

Another concern with this study is the game that was used. The pieces of the game were very unique and unusual, and were difficult to explain without showing the puzzle itself. In order for the participants to be fully subjected to the body language of the actor, the puzzle was displayed in pictures briefly at the corner of the video. The actor could not be shown with the puzzle pieces as this may have averted the subjects’ attention. There were no official directions that were provided with the game, consequently the rules and directions were written by the researcher, and not by the company themselves. The makers of the game may have been a more reliable source in explaining how to use the puzzle than the third party.

Once the video was finished, many of the participants expressed a level of stress or anxiety after hearing the initial directions along with some confusion when beginning to decipher
the puzzle. This may have affected their overall perception of the authority figure as he was the one who provided the directions.

Finally, due to time constraints, there was a low number of overall participants used for this experiment due to its tedious nature. The experiments were handled one by one and took an average of fifteen minutes per participant. If another study were performed, it would be best to have a greater number of subjects. This could help give clearer data and, possibly, reliability in the results.

Recommendations and Next Steps

Although we must be very cautious in interpreting these results, there is some data that suggests it is best to avoid a submissive posture when given a position of authority. When in a leadership position, one should not exert visible characteristics such as hunching shoulders, lowering the chin, crossing one’s arms or keeping them close to their center and (when sitting) crossing their legs. It is also recommended to avoid appearing overly confident. We did not assess the impact of the posture changes on the actor, but Carney, Cuddy, and Yap (2010) suggested “faking it until you make it” by putting forth effort to force oneself into confident postures could still be important in understanding the overall interpersonal dynamic. These include the broadening of shoulders, keeping the chin high, and positioning the feet at a wider stance. Although these yield positive results for the individual, it may unintentionally put others off by appearing threatening or cocky. If someone wanted to have the physical benefits of using confident postures, it may be best to do so when they are alone (i.e. in your office, car, or even a bathroom stall) and not around people who are in lower positions.
These recommendations may be useful for people who find themselves in any type of leadership position, especially when social interaction is a constant variable. People who perceive their boss or manager in a positive light tend to be more productive than those who hold their leaders in contempt. Body language is a key part of face-to-face interaction and can help build or break employee relationships. It may be beneficial to keep oneself in check by becoming aware of their own posture and how it may be affecting others. Placing a mirror in a convenient place can help people in higher positions ensure that they do not pose a threatening or disheartening stance when interacting with employees.

Many more questions remain. Future researchers interested in this area should consider doing a similar study but using different types of authority figures. For instance, the particular postures exerted by a female may be interpreted by a male. A possible follow-up study could investigate how differently a female may be rated when using the same postures as the male actor for this experiment.

The interpretations of this study can be utilized to guide persons of authority in how they should present themselves to their subordinates. Despite some of the conflicts within this study, the significant results give insight in how posture can affect the perceptions of those who are below an authority figure. This type of information could be useful for any type of organization, so long as there is a positional hierarchy involved. By being mindful of one’s posture, authoritative figures may appear more approachable to lower-level employees, hence contributing to a more harmonious work place.
References


doi:10.1037/0022-0167.30.2.158


Appendix

Figure Two

Figure Three

Figure Four

Figure Five
Hello and thank you for participating in my study. For this experiment, I am examining the connection between problem solving and the amount of time it takes to decipher a puzzle. The puzzle will be presented to you after I lay out the rules and directions. The proctor will show you an image of a given puzzle that you must solve. You will then lay out your puzzle so that it mirrors one in the provided image. This puzzle has four magnetic squares that can be flipped to a black or a white side. Make sure the puzzles are alike in the placement. The circular grooves that are the opposite color of the board are in the same orientation as the image. Once both of the puzzles coordinate with one another, place the shaped colored marbles in the same fashion as the one shown in the image. The marbles shown in the image are fixed, and you may not move them while solving the puzzle. Once your puzzle board matches the one shown in the picture, you may begin completing the puzzle. The goal is to fill in the entirety with all of the differently shaped, colored marbles so that all of the circular grooves have been filled and none of the colored pieces are overlapping over another or hanging off the edge of the board. The colored pieces should not cover the circular grooves that are the opposite color of the board. The proctor cannot answer any questions and will not give you any guidance while you are making your solution. You do not have a time limit, however you will be timed in the process of solving the puzzle. Thank you again for participating in this experiment.
AFFECT GRID

Please rate how you are feeling right now. Place one checkmark somewhere in the grid that indicates how you are feeling at this moment.

<table>
<thead>
<tr>
<th>Stress</th>
<th>High Arousal</th>
<th>Excitement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpleasant Feelings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>Sleepy</td>
<td>Relaxation</td>
</tr>
</tbody>
</table>

Pleasant Feelings
Research Survey

Please indicate on a scale of 1 to 7 (1 being strongly disagree, 7 being strongly agree) how much you agree with the following statements.

1. The researcher thoroughly explained the directions
   1 2 3 4 5 6 7

2. The researcher was clear and articulate in explaining the directions
   1 2 3 4 5 6 7

3. The researcher was professional in the directions and rules to the puzzle
   1 2 3 4 5 6 7

4. The researcher would be pleasant to work with
   1 2 3 4 5 6 7

5. The researcher would be an effective trainer
   1 2 3 4 5 6 7

6. The researcher would be an effective leader
   1 2 3 4 5 6 7

7. I would like to have the researcher as a manager
   1 2 3 4 5 6 7

Feel free to write any additional comments you may have on the researcher below:
Consent Form

Honors Thesis

You are consenting to participation in a research study. This research study may at times put you under psychological stress. Please read this form carefully and ask any questions you may have before agreeing to take part in the study. Taking part in this study voluntary and consent may be withdrawn at any time with written notification to the research team that you wish to withdraw your participation. You do not have to give a reason for your withdrawal.

Your answers will be confidential. The records of this study will be kept private. In any sort of report we make public, we will not include any information that will make it possible to identify you. Only the researchers and instructor will have access to the records. The purpose of this study is to determine whether or not there is a correlation between the amount of time it takes to solve a problem and following directions. You must be at least 18 years old to participate in this study.

There is the risk that you may find some of the questions or tasks to produce anxiety or stress. There is no compensation and there is no direct benefit to you.

The researcher conducting this study is completing an Honor’s Thesis for North Central College. This study has been submitted, reviewed, and accepted by the Institutional Review Board (IRB). Your anonymity for this study can be assured.

_______________________________
Name

_______________________________
Signature

By signing this form I certify I am 18 years of age or older, do not have any serious medical issues. I also certify I am not under the influence of drugs or alcohol. I agree to hold harmless North Central College, its faculty and students conducting this research.
Debriefing Form

Honors Thesis

Thank you for participating in this study! Your contribution will help expand the knowledge of the effects of body language and perceptions of authoritative figures. The goal of this study is to find a relationship between body postures and perception. This experiment did use deception in the process of your participation. While it was earlier stated that the purpose of this study was to identify a relationship between the time it took to solve a puzzle and cognition, it actually involved one’s perception of someone in a leadership position displaying a particular body position. You were exposed to one of the following postures as shown in the video: confident, neutral, and unconfident (or submissive). The puzzle was used as a cognitive distraction to avert your attention from the explicit body cues as well as allow the authority figure to explain a set of rules that you had to follow. The survey given afterwards, will help provide an understanding of how body posture may have affected your perceptions of an authority figure.

It is understandable that this study may have caused some mental distress. If you feel the need to disclose this we recommend contacting the Dyson Wellness Center and their counselors by calling (630)-637-5550. If you have any further questions, comments, or concerns you can contact Kelly Faber at kvfaber@noctrl.edu or faculty advisor Dr. Karl Kelley at knkelley@noctrl.edu

Once again, thank you for participating in our study! We hope you enjoyed the experience.