

THE EFFECT OF OPEN AND CLOSED POSTURES ON PLEASANT AND UNPLEASANT EMOTIONS

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A long literature exists that explores bodily postures and movements as potentially important sources of interpersonal communication in therapy (e.g., Braatoy, 1954; Collier, 1985; Deutsch, 1947; Dittman, 1962; Pishney, 1974/75; Sainsbury, 1955). Very little information is available, however, on the effects of open and closed body positions on the person assuming the postures. Given the prevalence of such postures in daily life, it would be of interest to have an understanding of their effects on our mood states. A consideration of the effects of posture on one's subjective emotional state is relevant also to those interested in using movement in therapeutic contexts. The present study represents an empirical exploration of the potential relationship between these common postures and emotional experiences.

Early work by James (1932), in which subjects were asked to assume postures and then report their emotions, revealed that holding certain postures produced a muscular strain that created for the subjects a meaning not identified when those subjects viewed these postures being posed by others. James noted this difference between observing and experiencing postures by giving them different labels, namely, "postures as seen" and "postures as felt" (p. 421). However, he did not pursue this issue any further.

Schilder (1950) proposed a reciprocal action of the mind and body, wherein the motor sequences of tension and relaxation can change or instigate specific inner attitudes and/or, that these inner attitudes can provoke different muscular responses. One funda-

mental assumption of dance therapy is that the manipulation of body movements can trigger emotions. Furthermore, if people gain an insight into personal emotional experiences through an awareness of their own bodily sensations, motions, postures and gestures, it is presumed they can also be taught to control their emotions through body movements.

The history of research in dance therapy, along with anecdotal data provided by dance therapists, supports the belief that body movements can affect the emotions of the person experiencing the movements (Rossberg-Gempton & Poole, 1992). Espenak (1972) suggested that voluntary muscular movements can be perceived as stimuli provoking emotional expressions. Berger (1972) noted that relaxing muscle tone decreased the original emotional state. Bernstein (1973) suggested that closed body positions (folded arms and crossed legs) signified a desire to have minimal contact with the environment and opened, moving bodies released tension, memories and emotions. Laird (1974) added the dimension of self-attribution (which was thought to come between the sensory input and the verbal output), stating that it can be influenced by the sensory stimulation of body movements. Dosamantes-Alperon (1979) suggested that movement therapy encouraged continuous biofeedback between the internal feelings and the external environment and that every postural change has the potential to evoke new self-concepts.

Zukerman, Klorman, Larrance and Spiegel (1981) found that expressive behavior (especially facial ex-

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pressions) influenced emotional experiences and explored the idea that there may be a physiological explanation for this influence. Contrary to the earlier muscular tension and affect studies, they found that an increase in muscular activity diminished emotions. A study by Laird (1984) showed that relaxing muscles can reduce or prevent guilty or anxious feelings and that people seemed to need to enact expressions in order to feel them. Riskind (1984) added a subtle dimension by finding that postures had a moderating function on emotions, whereby negative emotions required congruent negative postures. It seemed that assuming a slumping posture after failing at a task was a self-protective action in which people accommodated themselves to failure.

Duclos, Laird, Schneider, Sexter, Stern and Van Lighten (1989) investigated the effects of specific postures on emotions and found that certain postures were predictive of specific emotions. They also found that there were some individual differences in response. In particular, people who relied on bodily cues rather than on situational cues showed the highest correlation between postures and emotions. A study by Rossberg-Gempton, Dickinson, Kristiansen and Allin (1992) indicated that maintaining an open posture for 10, 20 and 30 seconds elicited positive emotions and that maintaining a closed posture for 10, 20 and 30 seconds elicited negative emotions. These empirical studies seemed to add confirmation to the earlier qualitative statements made by dance therapists and psychoanalysts, namely, that postural manipulations can influence the experience of emotions.

Can similar effects be found for postures that are more common to everyday experiences than the carefully scripted positions featured in the Duclos et al. (1989) study? The instructions for the postures in the present study were presented by a photograph. The method of adopting these postures, therefore, was left, to a certain extent, to the individual interpretations of the subjects. Thus, the present study extends the work of Duclos et al. (1989) by attempting to demonstrate a relationship between fairly common postures and a range of emotional experiences.

It is important to demonstrate a relationship between more general postures and emotional experiences because when applying concepts of feedback to therapy, it would be useful to know that postures of an open and closed nature can elicit positive and negative feelings, thus allowing the therapist to be less reliant on very specific stereotypic dramatizations of various emotions. The latter do not always allow for individ-

ual differences in the way clients construe and express specific emotions.

Any experimentation investigating the extent to which postures can bring about emotional experience is prone to demand characteristics. In other words, it is always possible that participants report emotional experiences that they think the experimenter is looking for, rather than those they are actually feeling. Though the potential effects of demand characteristics have been discussed by Duclos et al. (1989), no study to date has employed methodology that directly assesses the existence of these demand characteristics. The present study, therefore, included four sets of instructions that varied in the extent to which they implied a relationship between postures and emotional experiences. If subjects' emotional experiences varied with this expectancy condition, it can be argued that demand characteristics play a role in feedback research of this kind.

It was hypothesized that postures would affect emotions and that this effect would be independent of the duration of the posture; and that expectancy variables would affect the degree of response, but would be unnecessary to elicit the emotions.

In an endeavor to examine these hypotheses, this study examined two discrete levels of time duration in each posture, namely, 15 and 30 seconds. Four levels of expectancy instructions were given to the subjects prior to the subjects assuming the postures. These instructions varied from no instruction through to telling the subjects that most people adopting open postures feel positively and most people adopting closed postures feel negatively. Lastly, two levels of postures were examined: open and closed.

Method

Subjects

A random sample of 24 (12 female and 12 male) university students participated in this study. All subjects were volunteers.

Experimental Setting

The experiment was conducted in a 9' × 14' windowless room, offering a neutral environment, with one door leading to a small 2' × 4' grey block foyer that, in turn, led to another door and the hallway. Each subject participated in the experiment one at a time in the room. The experimenter sat on a chair in

the foyer and closed both doors to ensure complete privacy and the least number of distractions for the subject.

Stimulus Materials

Photographs of six postures (three open and three closed) were shown to each subject. Each of the postures represents a common position taken from observations of everyday movements, gestures, and postures (see Table 1 for a verbal description of these postures).

Each photograph had the face blacked out to prevent subjects from interpreting emotions through facial expressions. Each subject was given a questionnaire and an emotions checklist before assuming the first posture, then again after each posture. The emotions checklist listed the following terms: "fearful," "sad," "angry," "happy," "agreeable," "interested," "disgusted" and "surprised." Each adjective was rated by marking a slash through a 6-inch

Table 1
Descriptions of Postures

Postures	Description
Posture 1 (open)	Subject stands; feet spread to shoulder width; head straight ahead; chin horizontal to floor; arms extend up in a v-shape; shoulders and arms loose; palms up; hands and fingers open.
Posture 2 (closed)	Subject sits; knees tight; crossed ankles; leans away from the back of the chair; back slightly arched; arms crossed under the breast; fists clenched; head straight ahead.
Posture 3 (open)	Subject sits; feet spread; knees spread; hands on legs; palms up; head looks forward; chin parallel to the floor.
Posture 4 (closed)	Subject stands; legs apart; one foot forward; weight on the back foot; knees bent; arms up covering the face; one arm is crossed in front of the other; palms open; face forward; eyes forward; head tilts to the side slightly.
Posture 5 (open)	Subject stands; legs slightly spread; one foot forward; weight is on the back leg; arms extend slightly forward and higher than waist level; palms face each other; fingers spread.
Posture 6 (closed)	Subject sits; feet flat on floor; shoulders up; elbows to the body; fists on the chest; body crouches over the thighs.

line, labelled at one end "Did not feel at all" and at the other end "Felt very strongly." The line was divided and could range in score from 0 to 24. As in Duclos et al. (1989, p. 105), "the ratings were scored by counting the number of quarter inches from the 'Did not feel at all' end."

Procedure

After signing the consent form, each subject compiled the emotions checklist indicating how they felt before they assumed any postures. Each experimental group was then given its specific expectancy instructions and was shown one of the six photographs. **The four levels of expectancy instructions are presented here in increasing strength:**

1. "Would you please hold this position for "x" seconds?"
2. "This experiment is studying the relationship between posture and a mood checklist to see if the mood has changed."
3. "This experiment is studying the relationship between posture and a mood checklist to see how the mood has changed."
4. "When most people adopt this posture, they feel this negatively (or positively)."

The experimenter left the room while the subjects assumed and held the posture in the photograph. After holding the posture for 15 or 30 seconds, the experimenter called, "Stop" and the subjects reported how they felt by again filling out the emotions checklist. After completing this task, the subject said, "Ready." The experimenter entered the room, picked up that photograph, gave the subject the next photograph and left the room. The same procedure continued for all six postures.

For the no expectancy instruction condition, the posture instructions were embedded in another activity. Subjects filled out page one of Gordon's (1976) "Survey of Interpersonal Values" questionnaire before the posture/questionnaire activity. They then proceeded with the posture/questionnaire activity, whereby they filled out the emotions checklist, assumed the posture that was displayed on the given photograph for the 15 or 30 second interval of time (while the experimenter left the room), filled out the post-posture emotions checklist and then completed page two of the interpersonal values questionnaire.

Thus, the independent variables were the two types

of posture (open and closed), two levels of time duration (15 and 30 seconds) in each posture and the four levels of expectancy instructions. The dependent variables were the emotional responses, as measured by the emotions checklist.

All groups held each of the 6 postures for each of the 15 and 30 second intervals. To avoid carry-over effects, each subject was given no more than two open or closed positions in a row. To account for order and sequencing effects, conditions were counterbalanced so that no two subjects would have the same order of positions. In addition, each subject was randomly assigned to the sequenced positions. As the study was short (the experimental procedure took between 35 to 45 minutes); fatigue was not considered to be an issue.

Results

Design

The present study utilized a $4 \times 2 \times 2$ factorial design, combining between-subject and within-subject variables. This means that there were three variables, the first having four levels, and the others having two each. The between-subject variable was the expectancy instruction. There were four of these instructions. The within-subject variables were the two types of postures and the two time durations.

Changes in participants' subjective ratings on each emotion were calculated by subtracting their pre-posture ratings from their post-posture ratings. A negative score indicated that they experienced a reduction in the emotion after assuming the postures. A positive score indicated an increase in the emotion. The effects of the variables were tested using these positive and negative scores, as well as absolute values where appropriate, in a repeated measures analysis of variance.

The Effect of Open and Closed Postures on Emotional Experience

It was hypothesized that assuming a posture would affect the type of emotions that were elicited. **The posture by emotion interaction was significant, $F(7,140) = 19.27, p < .0001$.** Specifically, closed postures resulted in an increase in unpleasant emotions and open postures did not have this effect (see Figure 1).

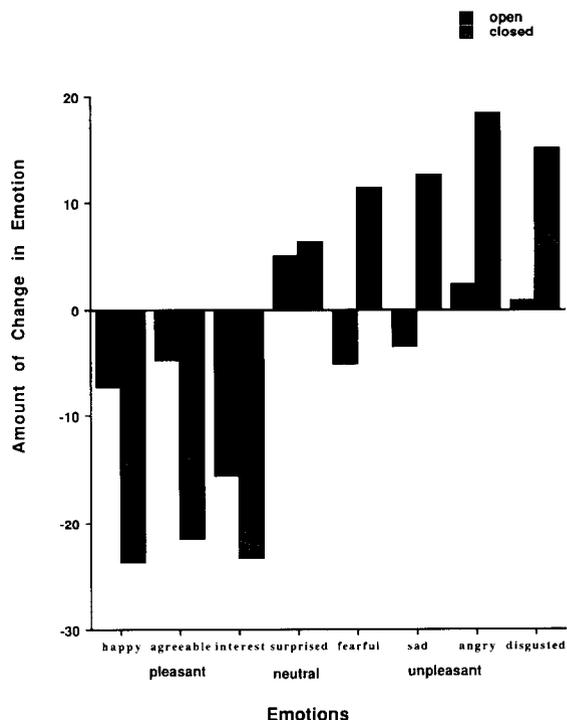


Figure 1. Effects of open and closed postures on specific emotions.

The Effects of Posture Duration on the Magnitude of Change

It was hypothesized that effects of posture on emotion would be independent of the duration of the posture. In order to reflect the magnitude of change, rather than direction, the data were transformed into absolute values. There was no significant main effect for duration, $F(1,20) = 0.22, p = .65$, nor a posture \times emotion \times duration interaction, $F(7,140) = 1.67, p = .12$.

The Effect of Expectancy Variables on the Degree of Response

It was also hypothesized that the expectancy variables would affect the degree of response, but not the kind of emotion experienced. No significant three-way interaction was found among expectation condition, emotion and posture, $F(21,140) = 0.29, p = .999$. This means that the effects of posture and emotion were independent of the expectation condition.

Indeed, there was no overall main effect for expectancy, $F(3,20) = 1.04, p = .3953$.

Other Analyses Performed

There was a main effect for emotion, $F(7,140) = 20.02, p < .0001$ (see Figure 2). There was a decrease in the experience of pleasant emotions and an increase in the experience of unpleasant emotions regardless of postures or duration. The greatest change was for "interest" and the least change was for "fearful."

When data were transformed into absolute values, there was a significant main effect for posture, $F(1,20) = 13.33, p < .01$. Specifically, subjects experienced a greater magnitude of emotional change for closed postures compared to open postures.

Three different postures comprised the open postures category. Further analysis was conducted to determine the effects of each individual posture. No significant differences were found among these three open postures, $F(2,40) = 0.21, p = .808$. Similarly, the three different closed postures were analyzed. Again, these differences were nonsignificant, $F(2,40) = 1.58, p = .218$.

Analysis was also performed to determine if there

were any differences attributable to sex of subject. Though there was no significant main effect for sex of subject, $F(1,22) = 1.32, p = .264$, there was a significant three-way interaction among posture, emotion and sex of subject, $F(7,154) = 3.51, p < .01$ such that the closed postures brought on a greater increase in unpleasant emotions for females than for males except for "disgust" and "surprise" (see Figure 3 and Figure 4).

Discussion

The significant interaction between posture and emotion suggests that a given posture affects the type of emotion experienced by the person assuming the posture. This finding adds support to the early exploration of James (1932), the work by Duclos et al. (1989) and the work by Rossberg-Gempton et al. (1992), indicating that postures can influence subjective emotional experiences. However, unlike the Rossberg-Gempton et al. (1992) study that found more directly that open postures elicited positive emotions and closed postures elicited negative emotions,

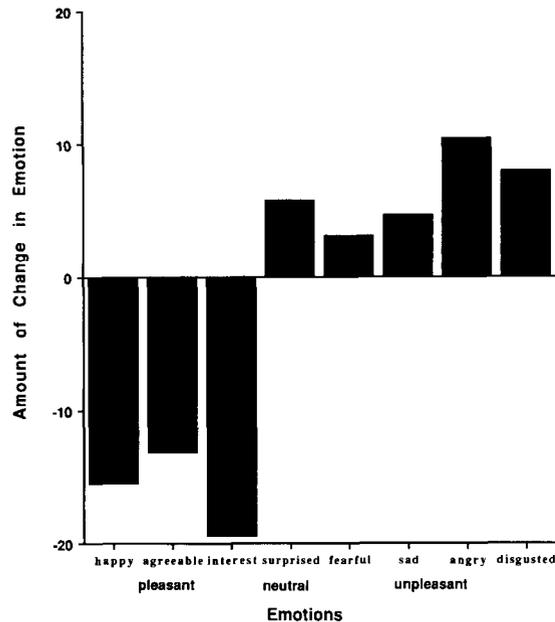


Figure 2. Subject's self-report of emotional changes averaged over postures.

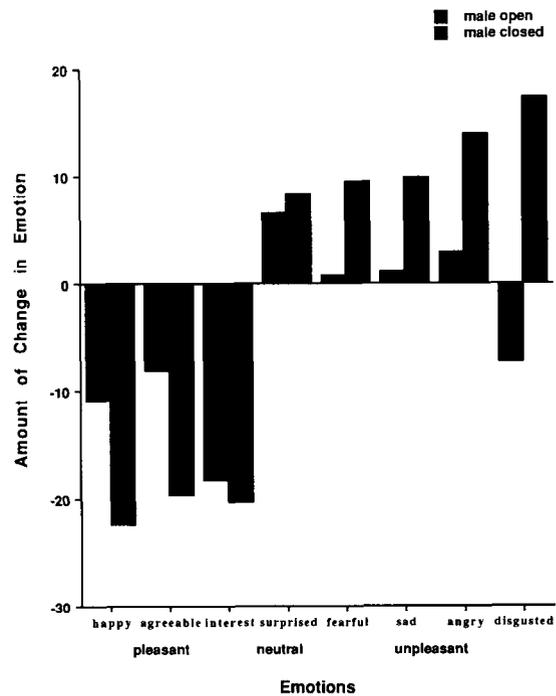


Figure 3. Effects of open and closed postures on specific emotions for males.

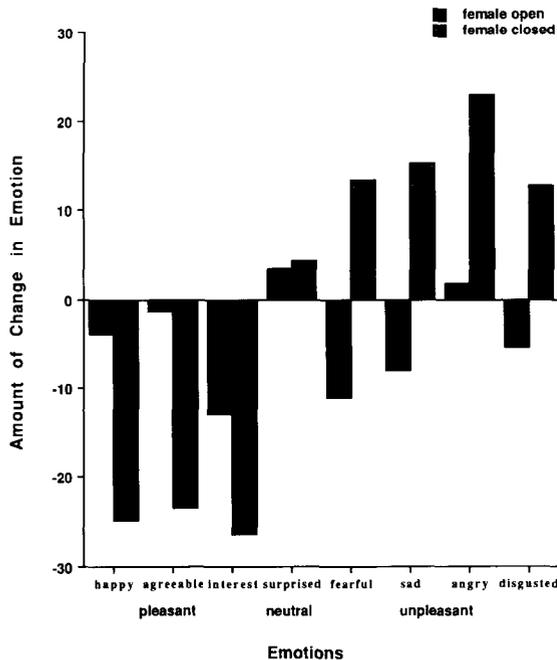


Figure 4. Effects of open and closed postures on specific emotions for females.

the present study found that these same open postures elicited a slight reduction in pleasant emotions and that the closed postures elicited an increase in unpleasant emotions.

Part of the difference in results may be due to this study using a set of baseline emotions (scaled from 0–24) for each subject. On average, subjects entered the testing situation in a pleasant emotional state, as indicated by the high baseline means for the positive emotions (“happy”: 14.37, “agreeable”: 13.62 and “interest”: 15.83) and the relatively low baseline means for the neutral and unpleasant ones (“surprised”: 3.54, “fearful”: 4.79, “sad”: 4.58, “angry”: 3.25 and “disgusted”: 3.37). This means that the subjects had more room to decline in their pleasant emotional experience and climb in their unpleasant emotional experience. The differences in initial baseline points cannot, however, explain the different effects each posture type had for pleasant and unpleasant emotions. For example, unpleasant emotional experiences increased after closed postures, but not after open ones.

The degree of emotion was not affected by the expectancy instructions. This suggests that the

changes in subjective ratings of emotion could not be attributed to experimenter induced expectancy effects or demand characteristics. To avoid further potential demand characteristics, the experimenter did not at any time label postures as being “open” or “closed” for subjects.

After the experiment ended, subjects were asked what they learned from the experience. Some subjects stated that, although they heard the specific expectancy instruction given to them, they chose to ignore it and decided to observe whether the postures could elicit an emotion; others said they had forgotten the expectancy instruction; others reported they felt skeptical at first and discovered, to their amazement, that they did experience emotional changes after assuming a posture. These findings can add support to the claim made by Laird (1974) that self-attribution can be influenced by the sensory stimulation of body movements and can also support Dosamantes-Alperson’s (1979) suggestion that every postural change has the potential to invoke new self-concepts.

A review of literature by Hall (1978) revealed that females were better than males at judging nonverbal behavior. In the present study, the interaction between posture, emotion and sex suggests that there were some differences between reported emotions for males and females. In particular, when holding a closed posture, females reported a greater increase in some unpleasant emotions (“angry,” “sad” and “fearful”) than males. This seems to extend the findings of a study by Rosenthal, Hall, DiMatteo, Rogers and Archer (1979) that suggested that females are superior at judging external unpleasant affective cues, by suggesting that females are better at reading certain internal unpleasant affective cues.

This experiment grapples with the same methodological problems of any study that examines emotions, namely, that emotions are difficult to define and everyone has personal interpretations of emotion terms. It is further recognized that, although sensory stimuli can be ignored, no one lives in a void and everything in the environment can and does stimulate our sensory system to some degree. Furthermore, it is recognized that as one is constantly moving to make minor bodily adjustments in daily life, the aspect of holding a given posture for a specific interval of time contained an element of artificiality.

Though our open postures were no more or less difficult to assume than were our closed postures (see Table 1), we do not know how physically comfortable our subjects were when they adopted these postures.

It is possible that some postures were part of their everyday repertoire, whereas other postures felt quite foreign. Future work in this area should explore this further by having subjects adopt postures that could be called habitual and non-habitual. Other work could measure the discrepancy between the kinds of postures required here and the naturally adopted postures of the subjects. It can be that comfortable postures elicit pleasant emotions, whereas uncomfortable or unfamiliar postures generate unpleasant ones.

The experimental nature and laboratory setting also make this study somewhat artificial. However, the effects observed in the present study will likely be stronger in real life than in a laboratory. Indeed, it is possible that ordinary postures, such as those featured in the present study, or when assumed in real life settings, may have a more powerful effect on emotions for the person assuming the posture than was demonstrated here, or than has previously been considered by past research.

The findings in this study seem to agree with James when he said "if we wish to conquer undesirable emotional tendencies in ourselves we must assiduously, and in the first instance coldbloodedly, go through the outward movements of those contrary dispositions which we prefer to cultivate" (James, 1890, Vol. 2, p. 463). This present study also lends empirical, quantitative support to numerous qualitative observations made in case studies by psychoanalysts such as Schilder (1950) who believed that motor sequences can change inner attitudes. The present study also supports the claims of dance therapists such as Espenak (1972) that muscle movements can evoke emotional responses.

Duclos et al. (1989) had their subjects adopt postures that were characteristic of specific emotions such as fear, anger and sadness. As prototypical expressions, these postures came with ready-made labels. The fact that people report an emotional experience that is consistent with a dramatic display of that emotion provides encouraging support for the claim that postural feedback contributes to emotional experience. The present study takes this one step further, demonstrating that people will report a change in a related cluster of emotions following a relatively generic posing of a closed or open posture. Thus, postural feedback is more than simply a matter of finding labels for one's poses. The present study suggests that fundamental movements have impact on a number of related transient emotional states.

There are longstanding theoretical assertions that

movement, especially of the face, provides feedback that affects emotional experience (Adelmann & Zajonc, 1989; Izard, 1971; Izard, 1990; Strack, Martin & Steppet, 1988; Tomkins, 1962). Though the physiological mechanisms of this feedback remain unclear, it appears that what has been called "facial feedback" is part of a larger feedback system that includes scripted movements, as was demonstrated by Duclos et al. (1989), and relatively common postures as featured in the present study.

Although this study gives empirical support to assumptions long held by many dance/movement therapists, more research is needed. Whereas it is recognized that there may, indeed, be duration effects for other time intervals, none were found for the 15- or 30-second intervals used in this experiment. In other words, holding the same posture for the two different time intervals did not change the types or intensity of elicited emotions. It is still undetermined how short a time interval is necessary to instill an emotional change. Moreover, it is unknown whether people suffering from emotional difficulties respond the same way to postural changes. Future studies may delve further into the mysteries of the interactions between body movements and emotions and may be helpful in giving people a sense of self-determination and self-control over their own private worlds.

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