San Fernando Valley State College

THE RELATION OF VOICE PERCEPTION TO SELF-ESTEEM

A thesis submitted in partial satisfaction of the requirements for the degree of Masters of Arts in Psychology

by

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Abstract

THE RELATION OF VOICE PERCEPT TO SELF-ESTEEM

by

Heide-Marie Franke

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Forty-eight subjects rated their own and others taped voices after being told that they were people with very high or low personality profiles. Half were told to expect their own voices and half were given no-warning. Pilot studies indicated a reversal of impact from that reported in the literature in which studies showed that success or positive feedback produced an increment in self-esteem and failure or negative feedback a decrement. Essentially the success-failure manipulation had no effect on how the voices were rated. However, the condition of warning no-warning and the interaction of success no-warning produced statistically significant effects.
INTRODUCTION

This study will be concerned with voice confrontation and the evaluation thereof. Many of us have had the experience of being confronted by our own voices as played back by a tape-recorder, and most of us have been shocked and dismayed by our own product. Holzman, Rousey, and Snyder (1966), Holzman and Rousey (1966), and Holzman, Berger, and Rousey (1967) treat this phenomenon as being a rather universal experience. This study would like to suggest that this phenomenon is not universal, and that attitudes toward the voice could differ dependent on whether the person involved has high or low self-esteem. Intuitively this seems to make sense, and experientially some of us can probably recall people who have said "that's my voice, I like it."

Inasmuch as the literature has not been concerned with the relationship of these two variables to each other, each variable will be reviewed briefly on an individual basis and then some rationale will be offered for attempting to
investigate a relationship between them.

Voice, as a part of expressive behavior, was examined in the 1920's and 1930's, after which its study remained practically dormant for twenty years. Michael and Crawford (1927) reported that intelligence could be accurately judged from voice inflection. Allport and Cantril (1924) found that, in general the voice conveys correct information concerning personality traits such as introversion-extroversion. This was found to be especially true in relation to highly organized traits, rather than physical appearances. They take this finding to support a "dynamic and personalistic theory of behavior." That is, along with other expressive behavior, voice reflects "inner personality." However, Eisenberg (1938), found that his subjects were able to detect dominance in a voice little better than chance, and Fay and Middleton (1941) found that their judges were not able to identify sociability in voices transmitted over a public address system to a significant degree.

More recently, Markl, Meisels, and Houck (1964) reported impressive data indicating that judges were able to divide subjects into two groups (schizophrenic and non-schizophrenic) very accurately on the basis of voice samples, where content is held constant.

The idea of voice reflecting inner personality is not so surprising when one realizes that the larynx is a
highly expressive organ because it contains the highest ratio of nerve fibers to muscle fibers of any functional system of the body, and should therefore be very responsive to interorganismic changes.

All of the latter studies have in common a judge who evaluates the voice of another as reproduced by recording equipment. However, an alternative way to view voice is as a product of the self.

Holzman and Rousey (1966) demonstrated that subjects, when confronted with their own recorded voices, showed observable affective and defensive responses and an awareness of a discrepancy between what they expected to hear and what they actually heard. These responses were explicit in spontaneous verbalizations and in semantic differential ratings of their own voices. Holzman, Rousey, and Snyder (1966) also demonstrated that these responses are explicit in psychophysiological reactions and in free associations.

The most obvious explanation of the appearance of affect in response to listening to one's own recorded voice involves the physical properties of recorded voices. When one speaks, one hears one's own voice mediated by bone and air conduction, (Bekesy, 1949), in contrast to when one listens to a recording of oneself. In the latter case, the bone conducted components of sound are practically eliminated. In effect, one is confronted with a
qualitatively different voice. This certainly could account for affect. There is, in fact, a discrepancy between the voice as a medium and the voice as a product, but this does not explain why defensive responses occur.

Holzman, Rousey, and Snyder (1967) demonstrated in a further study that the reaction to one's own voice cannot be attributed strictly to the physical differences between one's speaking voice and the recorded voice, but that a sudden confrontation with aspects of one's self as mirrored in the voice is involved. This was accomplished by using bi-lingual subjects who had spoken Spanish in their formative years, and had learned English, which was used in their academic and professional lives. This unique group of subjects did not show the affective and disruptive behavior when confronted with their English speaking voices, but when confronted with their native Spanish, their behavior took on the affective and disruptive behavior described in the earlier research of Holzman, Rousey, and Snyder (1966) and Holzman and Rousey (1966).

Holzman, Rousey, and Berger (1967) suggest that possibly the use of Spanish brings to mind the formative years in a sentimental way, or that the Spanish language per se is a more emotional language. These considerations are certainly limitations, but their suggestion that the subjects have both language and paralanguage in their native tongue, and only language in English seems to be
a more acceptable explanation. Paralanguage is that language which develops over and above the mere use of words. It is the individual's unique way of using language. It can be viewed as self invested in language. This is the self that confronts us in voice percept, and how we feel about this self would seem to be important in how we perceive its product.

We could support this view by referring to a need for consistency in voice percept and self-esteem. This need has been discussed by many researchers and has been identified by a multitude of words meaning essentially the same thing. Festinger (1957) refers to it as "consonance" Heider (1946), as "cognitive balance", and Osgood, Suci, and Tannenbaum (1957) as "congruence."

This brings us to the discussion of how self-esteem will be used and defined in this study. Since we will examine the relationship of voice perception to self-esteem it is necessary to operationalize self-esteem and determine if a manipulation of the operation is successful. The operational definition best suited for this purpose is that offered by William James in his Principles of Psychology.

"Our self-feeling in this world depends entirely on what we back ourselves to be and do. It is determined by the ratio of our actualities to our supposed potentialities; a fraction of which our pretensions are the denominator and the numerator our successes: thus
Self-esteem = \frac{\text{Success}}{\text{Pretensions}}

Such a fraction may be increased as well by diminishing the denominator as by increasing the numerator."

The use of this definition is not unique for it seems to be the basis of the operationalization of self-esteem in all the literature reviewed in which self-esteem was experimentally manipulated. The reviewed studies have as their common denominator ego-involving tasks (James' pretensions) and a random assignment of success and failure (James' success). The relationship of these ego-involving tasks to success or failure are equated to self-esteem. As a consequence of the manipulation of self-esteem, research has demonstrated that romantic liking, (Walster, 1965), persuasibility, (Gollob and Dittes, 1965), responses to dissonance, (Bramel, 1964), and reactions to evaluations by others, (Deutsch and Solomon, 1959) are affected.

The manipulation of self-esteem warrants a short discussion of stable versus fluctuating self-esteem. Walster (1965) points out that the bulk of the literature on self-esteem has treated it as an invariant, thus a fairly stable entity. Through introspection alone, we can come to the conclusion that self-esteem fluctuates. Walster (1965), Gollob and Dittes (1965), Deutsch and Solomon (1959), and Bramel (1964) lend credibility to this assumption by their research in which it was manipulated. The
fluctuations assumed by the latter researchers were discussed by Reik (1944) and are implicit in James' definition of self-esteem. In effect, there exists in each human being a fairly stable underlying level of self-esteem, which fluctuates depending on the nature of the intake.

This leads to another question that Walster (1965) poses. Is experimentally lowered or raised self-esteem the same as that present in a person whose self-esteem is habitually low or high? This question has not been answered, but it is obvious that unless this assumption is made, very little data can be gathered. These considerations are fertile ground for future research.

Although the term self-esteem has been operationally defined in this study, for the purpose of accuracy it can be considered to be only a success-failure manipulation because two pilot studies (Appendices I and II) did not bear out the findings in the literature. (Walster, 1965; Gollub and Dittes, 1965; Deutsch and Solomon, 1959; and Brame, 1964). That is, in the literature, subjects randomly assigned to failure (low self-esteem) conditions rated themselves as significantly lower on self-esteem measures than subjects assigned to success (high self-esteem) conditions. This seems to make intuitive sense. However, the pilot studies run for this paper found the reverse to be true. Pilot study I (Appendix I) approached
significance and pilot study II (Appendix II) was significant. That is, those students who were assigned the failure (low self-esteem) conditions rated themselves significantly higher on the self-esteem measure used, and those who were assigned the success conditions rated themselves lower.

For purposes of this paper, it must be kept in mind that success-failure is being manipulated. Although similar manipulations have been referred to as self-esteem manipulations, the pilot studies undertaken do not justify such labeling.

On the basis of these pilot studies, one is forced to conclude that self-esteem (success-failure) manipulation is a very delicate matter. That is, only when we operationalize such a term can what we are talking about make any sense. In the pilot studies described, the accepted and tested intuitive assumption that failure conditions will elicit low self-esteem feelings as demonstrated by low self-ratings, are seriously challenged.

It is true that neither pilot study was an exact replication of such manipulations which are said to produce changes in self-esteem, and there are certainly differences dependent on the exact input and outcome measures. However, the replications contained all of the essential ingredients, a credible success-failure manipulation, followed by a self-report on a reliable self-esteem
measure.

On the basis of some of the subjective feedback, it would be possible to assume that the reversed trends could be attributed to defensive masking of self-esteem. For instance the subjects exposed to the failure condition, when asked to report their feelings on the outcome of the success-failure manipulation wrote such things as: "what do you expect at eight o'clock in the morning?" In other words, "I'm not really that bad", and possibly countered by rating themselves very high on the self report self-esteem measure.
OVERVIEW OF EXPERIMENTAL PROCEDURE AND
STATEMENT OF HYPOTHESES

The experimental procedure was constructed in such a way as to expose each subject to his own voice embedded in a series of five voices. To test for the shock effect that Holzman and Rousey (1966) described, one-half of the subjects (Ss) were warned of the occurrence of their voice, and one-half were not warned. In order to investigate the relationship of success-failure to voice perception, one-half of the Ss were exposed to success conditions, and one-half were exposed to failure conditions.

Prior to the pilot studies, the intention was to hypothesize that voices in general, and one's own voice in particular would be rated higher under success and lower under failure conditions. This hypothesis was generated on the basis of the literature which indicated that success experiences would produce an increment in self-esteem and that failure experiences would produce a decrement in self-esteem. The reader will recall that the pilot studies undertaken for the present experiment indicate that a
reversal will occur. Because of the discrepancy between the literature and the pilot studies, two different hypotheses could be generated regarding the main effects of the success-failure manipulation.

If one were to generate an hypothesis on the basis of the literature, one would predict that the voice would be rated significantly higher under success conditions and lower under failure conditions. If however one were to accept the pilot studies, it would be expected that the voice would be rated significantly lower under success conditions and higher under failure conditions. Because of this discrepancy neither prediction will be made.

However, success-failure is expected to interact with the warning no-warning condition. Specifically it is expected that in the failure condition, the subject will rate his voice lower when warned than when not warned, whereas in the success condition it is hypothesized that warning no-warning will have no effect on rating own voice. The reasoning for this is that in the failure condition, the negative set of the subject will carry over to the evaluation of his own voice when warned. When not warned, the subject may not recognize his voice or may defensively refuse to recognize it. In the success condition, warning should have no effect on own voice rating because of the prominence of the earlier success experience, and consequently the Ss should rate their own
voice high in both the warning and the no-warning conditions.
METHOD

Pilot Studies:
The pilot studies, described in Appendices I and II, were run to determine if self-esteem was actually being manipulated. In both cases, the manipulation was a reversal of the self-esteem manipulations reviewed in the literature. In pilot study I, the manipulation approached significance, and in pilot study II, the manipulation was significant at the .05 level. The procedure used in pilot study II was used in the body of the experiment for the purpose of manipulating self-esteem or more accurately, success-failure.

Body of Experiment:
The experimenter (E) asked for volunteers for an experiment in a SFVSC Introductory Psychology class. It was explained that three 15-minute meetings would be involved. Forty-eight students (28 females and 20 males) volunteered and comprised the experimental subjects (Ss).
Meeting 1:

This was a group meeting at which the California Psychological Inventory (short form) (CPI) was administered in the manner described in pilot study II. After the completion of the CPI, the Ss arranged the second 15-minute meeting with E.

Meeting 2:

At this meeting E told S that he or she was participating in a study related to interviewing techniques. This was presented in the following manner: "In an interviewing situation, the interviewer often records the interview. I am concerned here with the reproduction qualities of recorded material. You may have read in Psychology Today that Albert Mehrabian has shown that in a message the total impact is most affected by the vocal and facial qualities of the speaker rather than by the verbal message. In fact, the percentages look something like this: .07 verbal + .38 vocal + .55 facial = 100%. This research has led me to examine more closely the vocal qualities that recording equipment transmits." S is then engaged in a short conversation with E about anything that seems appropriate for the purpose of relaxing S. After a brief talk, S was asked to read a standard passage into the recorder. E then set up a mutually convenient time for the final meeting. S was told that
at the final meeting he would be asked to evaluate a series of five voices, and that at this time he would receive the results of his CPI performance. It was also explained that the purpose of the CPI evaluation was for the identification of personality traits so that it would be possible for E to examine what kind of people say what kind of things about voice.

Meeting 3:

One week later S met once more with E for the final phase of the experiment. At this time S received a card in an envelope evaluating his CPI performance. S was told that E had not been informed of his performance, and that S should not discuss the matter with E, since E is only concerned with his evaluation of the five voices for the present. These five voices included four standard voices in positions 1, 2, 4, and 5, and the S's voice in position 3.

After the presentation of each voice, S was asked to evaluate the voice on the semantic differential. The particular adjectives selected were taken from Coyne and Holzman (1966), who constructed three equivalent forms of the semantic differential for their purposes. The three equivalent forms have items that are highly loaded on the activity, potency, and evaluative factors described by Osgood, Suci, and Tannenbaum (1957). E pooled
18 of the adjective pairs that had the highest loadings on the three factors. Six adjective pairs were included under each of the three factors. This arrangement made possible the observation of the more specific aspects of evaluating the voice.

The Ss were randomly assigned to success and failure conditions. Ss were then randomly assigned to "voice with warning", and "voice with no warning" conditions.

A 2 X 2 analysis of variance design was used to examine the data.

Apparatus:

The voices were recorded on an Ampex 260, and played back to the Ss through an Ampex speaker by two Wollensak tape recorders behind a screen. The screen was provided to eliminate the visual cues given by the two tape recorders used to play back the voices. One tape recorder played the standard voices back, and the other always played the S's voice. E was able to make the switch from one recorder to the other inconspicuously with the aid of a transfer switch.
RESULTS

Each subject (S) in the experiment rated five voices on a semantic differential including his own voice in the middle position. In effect each S contributed five scores to the data. The data consists of four groups or conditions under which each of the five voices were evaluated. Voices 1-5 were evaluated under the four conditions success with warning (SW), success with no warning (SNW), failure with warning (FW), and failure with no warning (FNW), and have the following average means and standard deviations. The average means and standard deviations were obtained by taking the average of the sum of four means and standard deviations of the rating of a voice under the four experimental conditions. The possible range of the ratings was 7 - 105.

<table>
<thead>
<tr>
<th>Voice #1</th>
<th>Means</th>
<th>Standard Deviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>70.5</td>
<td>8.4</td>
</tr>
<tr>
<td>2</td>
<td>79.3</td>
<td>10.5</td>
</tr>
<tr>
<td>3</td>
<td>58.7</td>
<td>8.2</td>
</tr>
<tr>
<td>4</td>
<td>65.8</td>
<td>12.8</td>
</tr>
<tr>
<td>5</td>
<td>59.8</td>
<td>16.1</td>
</tr>
</tbody>
</table>
The obtained average means are shown in Figure 1.

An analysis of variance was performed over all of the data. The results that were significant are summarized in Tables 2 and 4. Tables 1 and 3 show the corresponding means and standard deviations.

The analysis of variance of voice #3 (the own voice) on the sum of the three components, activity (A), evaluative (E), and potency (P) as a function of the success-failure and warning no-warning conditions is summarized in Table 2.

The A(success-failure) B(warning no-warning) interaction was significant at the .01 level of confidence. Graphically the interaction is illustrated in Figure 2, where one can see that evaluations on ratings in the success condition were affected as a function of the warning no-warning condition. The warning no-warning category (B) approached significance at the .05 level of confidence and was the major contributor to the interaction effect. The success-failure category was not significant.

Each rating can be broken down into three components; A, E, and P. Figure 3 illustrates how they contribute to the interaction effect in voice #3. Graphically the A component interaction alone is almost an exact duplication of the sum of the A + E + P interaction, indicating that it is the major contributor to the interaction effect. The E and P components support the interaction.
An analysis of variance on the sum of A, E, and P, showing the differences between voice #3 and the mean of voices 1, 2, 4, and 5 as a function of success-failure and warning no-warning is summarized in Table 4. Variation due to the warning no-warning condition (B) rendered an F significant at the .05 level of confidence. The success-failure condition (A) did not yield a significant F, but the AB interaction approached significance at the .05 level of confidence. The warning no-warning effect shown in Figure 4 is a reversal of the same effects illustrated in Figures 2 and 3. That is, in Figures 2 and 3 no warning in the success condition was associated with a low cell mean, and warning in the success condition with a high cell mean. The reversal can be explained by taking into account that Figures 2 and 3 are concerned with the evaluation of the own voice, which is different from the comparison of voice #3 to voices #1, 2, 4, and 5, and Figure 4 illustrates the comparison of own voice to other voices.

The ratings of voices 1, 2, 4, and 5 were significantly different from voice #3 as established by a check to establish if the differences were more than 0 (F = 45.3 df = 1/44, p < .01).
Figure 1. Average means of voice ratings on the semantic differential under the four conditions (SW, SNW, FW and FNW)

*Voice #3 was rated lowest under all four conditions (SW, SNW, FW and FNW)
### TABLE 1

**MEANS AND STANDARD DEVIATIONS (Voice #3)**

<table>
<thead>
<tr>
<th></th>
<th>WARNING</th>
<th>NO WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>63.2</td>
<td>53.3</td>
</tr>
<tr>
<td>Failure</td>
<td>58.0</td>
<td>60.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>WARNING</th>
<th>NO WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>8.4</td>
<td>6.8</td>
</tr>
<tr>
<td>Failure</td>
<td>7.1</td>
<td>7.8</td>
</tr>
</tbody>
</table>
### Table 2

**Summary of Analysis of Variance (Voice #3)**

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A success-failure</td>
<td>13.02083</td>
<td>1</td>
<td>13.02083</td>
<td></td>
</tr>
<tr>
<td>condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B warning no-warning</td>
<td>172.52084</td>
<td>1</td>
<td>172.52084</td>
<td>3.02*</td>
</tr>
<tr>
<td>condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB</td>
<td>450.18756</td>
<td>1</td>
<td>450.18756</td>
<td>7.88**</td>
</tr>
<tr>
<td>Within Cell</td>
<td>2513.75022</td>
<td>44</td>
<td>57.13086</td>
<td></td>
</tr>
</tbody>
</table>

*approaches significance at the 05 level of confidence

**significant at the .01 level of confidence
Figure 2. Interaction effect significant at the .01 level of confidence present in the ratings of voice #3 (the own voice)
Figure 3. Contribution of components A (activity), E (evaluative) and P (potency) to the interaction effect of voice #3

*significant at the .05 level of confidence
**approaches significance at .05
**TABLE 3**

MEANS AND STANDARD DEVIATIONS  
(Comparison of Voices 1, 2, 4 and 5 to Voice #3)

<table>
<thead>
<tr>
<th></th>
<th>WARNING</th>
<th>NO WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>13.0</td>
<td>61.8</td>
</tr>
<tr>
<td>Failure</td>
<td>43.3</td>
<td>43.8</td>
</tr>
</tbody>
</table>

STANDARD DEVIATIONS

<table>
<thead>
<tr>
<th></th>
<th>WARNING</th>
<th>NO WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>45.3</td>
<td>45.00</td>
</tr>
<tr>
<td>Failure</td>
<td>41.4</td>
<td>34.7</td>
</tr>
</tbody>
</table>
TABLE 4

SUMMARY OF ANALYSIS OF VARIANCE (on the sum of the A, E, and P showing the differences between voice #3 and the mean of voices 1, 2, 4, and 5 as a function of the success-failure and warning no-warning conditions.)

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A success-failure condition</td>
<td>438.02087</td>
<td>1</td>
<td>438.02087</td>
<td></td>
</tr>
<tr>
<td>B warning no-warning condition</td>
<td>7178.52149</td>
<td>1</td>
<td>7178.52149</td>
<td>4.14**</td>
</tr>
<tr>
<td>AB</td>
<td>6936.02149</td>
<td>1</td>
<td>6936.02149</td>
<td>4.00*</td>
</tr>
<tr>
<td>Within Cell</td>
<td>76203.36735</td>
<td>44</td>
<td>1731.89471</td>
<td></td>
</tr>
</tbody>
</table>

*approaches significance at the .05 level of confidence
**significant at the .05 level of confidence
Figure 4. Effect of the warning no-warning condition (comparison of voice #3 to voices 1, 2, 4 and 5)
DISCUSSION OF RESULTS

The results although significant in key areas do not support either of the alternate predictions that could have been made regarding the main effects of the success-failure manipulation, nor the specific hypothesis in relation to the interaction. In a general way the results lend more credibility to the work of Holzman, Rousey, and Snyder (1966), Holzman and Rousey (1966), and Holzman, Berger, and Rousey (1967), who treat dismay at the own voice as a universal phenomenon. Figure 1 clearly illustrated that voice #3 (the own voice) has the lowest average rating, in fact noticeably so when one takes into account that in voice #5, which also has a low average rating, the standard deviation is quite high. Figure 1 is also interesting because it suggests that ratings have been influenced by an order effect, an effect due to the unique properties of voices 1, 2, 4 and 5, or an effect created by dismay experienced at hearing the own voice which carries over to the evaluations of voices 4 and 5. These possible explanations
could be explored in further research through a manipulation of order of presentation of the voices.

Voices 1, 2, 4 and 5 were not influenced to a significant degree by the experimental manipulations. Only voice #3 seem to be affected. So essentially the evaluation of all voices was not influenced by the success-failure manipulation. It was rather the interaction of warning no-warning with success-failure that was significant at the .01 level in relation to voice #3. This interaction could be interpreted to support Holzman and Rousey (1966) because the success, no-warning condition elicited a significantly lower rating than the success, warning condition, or for that matter both the failure, warning and failure, no-warning conditions. This result could be explained by suggesting that all scores are good estimates of the own voice, but that the combination of success with no-warning elicits shock. Under the failure condition this would not be the case because the Ss would not have unrealistically high expectations. An alternate explanation which goes along with the pilot studies is a variation of the theme defensiveness. In this case one might suggest that the low rating at success with no-warning occurs because the Ss do not have the same need to defend their voices as when they are warned of the occurrence. Under the failure conditions the higher cell means could be explained by results of
the pilot studies. That is, a failure condition produces an increment in evaluation of self or own voice in this case.

Credibility is lent to both of these explanations through the observation that all subjects recognized their own voices, under all four conditions. Along with the significant interaction, the warning no-warning category made a contribution to the variance of voice #3, but not the success-failure manipulation. Components A (activity) and E (evaluative) made the major contribution to the interaction effect. A was significant at the .05 level of confidence and E approached the .05 level. This seems to indicate that these components are more sensitive to variation in voice perception.

Comparing voice #3 to voices 1, 2, 4 and 5 is merely another way of looking at ratings of the own voice. It is a comparison composed of the difference between the sum of voices 1, 2, 4 and 5 minus (V3). Because we know that the Ss rated their own voices lower under all four experimental conditions it is clear why the voice comparisons are lowest under the condition success, warning. This difference is the lowest because the Ss rated their own voices highest at this point, and thus more like the way in which they rated other voices. In the success-no warning category Ss rated their own voice least like other voices. Another way of saying this would be that Ss rated their own voices
very low thus making the difference quite large. In the case of comparing the own voice to other voices the warning no-warning condition was significant at the .05 level and the interaction effect approached the .05 level of confidence.

The unexpected significance of the main effects of the warning no-warning category suggests that in further research one might want to find a population that had no experience in relation to hearing their own voice on recording equipment in order to clarify what is happening at this point.

Probably the most interesting aspect of this research had to do with the pilot studies which cast a shadow on self-esteem manipulations per se. A need for future research in this area is strongly indicated. One would want to replicate the pilot studies found in Appendices I and II to check their stability and experiment with a series of other such manipulations. In such manipulations the use of ego-involving tasks, along with the credibility of the manipulation and the reliability of the self-esteem measure used are the key areas to be investigated. The interested reader might want to begin by referring to Skolnick and Shaw (1970) who discuss new findings in relation to the reliability of the self-esteem measure used in this study.
REFERENCES


Fay, P.J., and Middleton, W.C., "The ability to judge sociability from voice as transmitted over a public address system." Journal of social psychology. 1941, 13, 144-155.


Wechsler, David, The Measurement of Adult Intelligence.

APPENDIX I

Self-Esteem Manipulation
Pilot Study I

The experimenter (E) introduced herself to a class of 36 San Fernando Valley State College Introductory Psychology students, and said a few sentences about the test.

"Good morning, my name is __________. I am a graduate student in the Department of Psychology. The nature of my experiment does not permit me to tell you about it, but I will tell you about the part that you as a class are to play in it after you have completed the forms that I will pass out to you.

The first form is the Digit Symbol test of the Wechsler Adult Intelligence Scale. This test bears on intellectual functioning as it pertains to memory for abstract designs. Recently it has been found to be highly correlated with success in college."

After all of the subjects (Ss) had such a form, E gave the standardized instructions for the Wechsler Digit Symbol test.

"Look at these boxes, notice that each has a number in the upper part and a mark in the lower part. Every number has a different mark in the lower part. Now look here (pointing to the samples) where the upper boxes have numbers, but the squares beneath have no marks. You are to put in
each of the squares the mark that should go there, like this (pointing to the key and then to the samples). Here is a 2, so you would put in this mark, here is a 1, so you would put in this mark, and here is a 3, so you would put in this mark. Now you do it for these numbers as far as this line (pointing to the test blank). Now when I tell you to begin, start here and fill in as many squares as you can without skipping any. Ready. Begin. Do them in order and don't skip any."

After 90 seconds on the Digit Symbol test, the Ss were told to count the number of their correct reproductions and record their score on the second page of the test form, where they could compare their score to some college norms for this test. The norms were bogus. They were designed to make one-half of the Ss feel that they had performed on a superior level, and the other half of the Ss feel that they had performed very poorly.

After E collected the Digit Symbol forms, E passed out the personal reaction inventory developed by Janis and Field (1959) as a measure of self-esteem. The Ss were then debriefed.

Results: The difference on the self-esteem measure between the success and failure groups approached significance, and was significant at the .10 level on a two-tailed test. The interesting phenomena is that the approach of significance was in a direction opposite to the one expected on the basis of the self-esteem manipulations
found in the literature. That is, those Ss with low scores rated themselves almost significantly higher on the self-esteem measure than those with the high digit symbol scores.
APPENDIX II

Self-Esteem Manipulation
Pilot Study II

The experimenter (E) introduced herself to a class of 32 San Fernando Valley State College Introductory Psychology students, and explained the testing procedure.

"Good morning, my name is __________________. I am a graduate student in the Department of Psychology and would like your co-operation in a research project. Today I will be administering a short form of the California Psychological Inventory (CPI). It is a personality measure consisting of 65 true-false statements. At your next class meeting, I will give you individual feedback on your performance, and some information on the nature of the experiment.

The evaluation of the CPI performance will be carried out by a group of therapists in the Valley, who will be available to discuss the evaluation with you if you wish."

At the next class meeting, all Ss received an appraisal card in a sealed brown envelope. There were two types of appraisals. One-half of the appraisals stressed the Ss immaturity, conformity, lack of creativity, etc., and the other half of the appraisals stressed the Ss maturity, independence, creativity, etc.
After the Ss had a chance to read the appraisals, a personal reaction inventory developed by Janis and Field (1959) as a measure of self-esteem was administered. Ss were debriefed.

Results: The difference on the self-esteem measure between the success and failure groups was significant at the .05 level on a one-tailed test. The one-tailed test was used because a prediction was made on the basis of pilot study I. The prediction was that those Ss who received the poor or failure personality appraisal would rate themselves significantly higher on the self-esteem measure than those who received the good or success personality appraisal, as indeed they did.
APPENDIX III

7. Digit Symbol

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Check your score against the Average Digit Symbol Score for College Populations, and then record your score in the empty box below.

Average Digit Symbol Score for College Populations*

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My Score: [ ]

*Table of Average Digit Symbol Scores is taken from Massey (1964) Wais Scoring Criteria.
Check your score against the Average Digit Symbol Score for College Populations, and then record your score in the empty box below.

Average Digit Symbol Score for College Populations*

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My Score: [ ]

*Table of Average Digit Symbol Scores is taken from Massey (1964) Wais Scoring Criteria.
APPENDIX IV

California Psychological Inventory - Short Form
(True - False)

1. I enjoy social gatherings just to be with people.
2. I usually go to the movies more than once a week.
3. There's no use in doing things for people; you only find that you get it in the neck in the long run.
4. I always like to keep my things neat and tidy and in good order.
5. I tend to be on my guard with people who are somewhat more friendly than I had expected.
6. I get very nervous if I think that someone is watching me.
7. Most people would tell a lie if they could gain by it.
8. I hate to be interrupted when I am working on something.
9. A windstorm terrifies me.
10. I used to keep a diary.
11. There have been many times when I have been very angry.
12. I do not like to see people carelessly dressed.
13. I take a rather serious attitude toward ethical and moral issues.
14. I would like to see a bullfight in Spain.
15. I set a high standard for myself and I feel others should do the same.
16. I do not always tell the truth.
17. It takes a lot of argument to convince most people of the truth.
18. Most people make friends because friends are likely to be useful to them.
19. I am somewhat afraid of the dark.
20. I read at least ten books a year.
21. I would like to hear a great singer in an opera.
22. My home life was always happy.
23. I commonly wonder what hidden reason another person may have for doing something nice for me.
24. I have had more than my share of things to worry about.
25. When I meet a stranger I often think that he is better than me.
26. I have no patience with people who believe that there is only one true religion.
27. I like to go to parties and other affairs where there is lots of loud fun.
28. At times I have worn myself out by undertaking too much.
29. I usually expect to succeed in things I do.
30. Sometimes I feel that I am about to go to pieces.
31. I would like to be a nurse.
32. I must admit that I have a bad temper, once I get angry.
33. I want to be an important person in the community.
34. I would be very unhappy if I was not successful at something I had seriously started to do.

35. I must admit I feel sort of scared when I move to a strange place.

36. I enjoy many different kinds of play and recreation.

37. As a youngster I was suspended from school one or more times for cutting up.

38. I would like to be an actor on the stage or in the movies.

39. When the community makes a decision, it is up to a person to help carry it out even if he had been against it.

40. Any man who is able and willing to work hard has a good chance of succeeding.

41. I would be willing to describe myself as a pretty "strong" personality.

42. I find that a well ordered life with regular hours is congenial to my temperament.

43. Sometimes I used to feel that I would like to leave home.

44. Some people exaggerate their troubles in order to get sympathy.

45. A person should not be expected to do anything for his community unless he is paid for it.

46. I dream frequently about things that are best kept to myself.

47. My parents wanted me to "make good" in the world.

48. Voting is nothing but a nuisance.

49. I could be perfectly happy without a single friend.

50. Our thinking would be a lot better off if we could just forget about words like "probably", "approximately", and "perhaps,"
51. I usually try to do what is expected of me, and to avoid criticism.
52. I seldom worry about my health.
53. I have never seen a vision.
54. Disobedience to any government is never justified.
55. I doubt if anyone is really happy.
56. I know who is responsible for most of my troubles.
57. I sometimes wanted to run away from home.
58. I have had attacks in which I could not control my movements or speech, but in which I knew what was going on around me.
59. I regard the right to speak my mind as very important.
60. I am embarrassed with people I do not know well.
61. There are very few people that just cannot be trusted.
62. My skin seems to be unusually sensitive to touch.
63. The trouble with many people is that they don't take things seriously enough.
64. I get sort of annoyed with writers who go out of their way to use strange and unusual words.
65. People who seem unsure and uncertain about things make me feel uncomfortable.
APPENDIX V

PERSONAL REACTION INVENTORY

1. How often do you feel inferior to most of the people you know?
   a. very often
   b. fairly often
   c. sometimes
   d. once in a great while
   e. practically never

2. Do you ever think that you are a worthless individual?
   a. very often
   b. fairly often
   c. sometimes
   d. once in a great while
   e. practically never

3. How confident do you feel that someday the people you know will look up to you and respect you?
   a. very
   b. fairly
   c. slightly
   d. once in a great while
   e. practically never

4. How often do you feel to blame for your mistakes?
   a. very often
   b. fairly often
   c. sometimes
   d. once in a great while
   e. practically never

5. Do you ever feel so discouraged with yourself that you wonder whether anything is worth while?
   a. very often
   b. fairly often
   c. sometimes
   d. once in a great while
   e. practically never
6. How often do you feel that you dislike yourself?
   a. very often
   b. fairly often
   c. sometimes
   d. once in a great while
   e. practically never

7. In general, how confident do you feel about your abilities?
   a. very
   b. fairly
   c. slightly
   d. not very
   e. not at all

8. How often do you have the feeling that there is nothing you can do well?
   a. very often
   b. fairly often
   c. sometimes
   d. once in a great while
   e. practically never

9. How much do you worry about how well you get along with other people?
   a. very
   b. fairly
   c. slightly
   d. not very
   e. not at all

10. How often do you worry about criticisms that might be made of your work by whoever is responsible for checking up on your work?
    a. very often
    b. fairly often
    c. sometimes
    d. once in a great while
    e. practically never
11. How often do you feel self-conscious?
   a. very often
   b. fairly often
   c. sometimes
   d. once in a great while
   e. practically never

12. Do you ever feel afraid or anxious when you are going into a room by yourself where other people have already gathered and are talking?
   a. very
   b. fairly
   c. slightly
   d. not very
   e. not at all

13. When you have to talk in front of a class or a group of people your own age, how afraid or worried do you usually feel?
   a. very
   b. fairly
   c. slightly
   d. not very
   e. not at all

14. When you are trying to win in a game or sport and you know that other people are watching you, how rattled or flustered do you usually get?
   a. very
   b. fairly
   c. slightly
   d. not very
   e. not at all

15. How much do you worry about whether other people will regard you as a success or a failure in your job or career?
   a. very
   b. fairly
   c. slightly
   d. not very
   e. not at all
16. When in a group of people, do you have trouble thinking of the right things to talk about?

a. very 
b. fairly 
c. slightly 
d. not very 
e. not at all

17. When you have made an embarrassing mistake or have done something that makes you look foolish, how long do you usually keep worrying about it?

a. very 
b. fairly 
c. slightly 
d. not very 
e. not at all

18. Do you find it hard to make talk when you meet new people?

a. very 
b. fairly 
c. slightly 
d. not very 
e. not at all

19. How often do you worry about whether other people like to be with you?

a. very often 
b. fairly often 
c. sometimes 
d. once in a great while 
e. practically never

20. How often are you troubled with shyness?

a. very often 
b. fairly often 
c. sometimes 
d. once in a great while 
e. practically never
21. When you are trying to convince other people who disagree with your ideas, how worried do you usually feel about the impression you are making?
   a. very
   b. fairly
   c. slightly
   d. not very
   e. not at all

22. How often do you feel worried or bothered about what other people think of you?
   a. very often
   b. fairly often
   c. sometimes
   d. once in a great while
   e. practically never

23. When you think about the possibility that some of your friends or acquaintances might not have a good opinion of you, how concerned or worried do you feel about it?
   a. very
   b. fairly
   c. slightly
   d. not very
   e. not at all