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THE EFFECTS OF MANIPULATING DIALECT AND INTONATION ON JUDGE RATINGS OF SPONTANEOUS AND CALCULATED ANSWERS

by

D. Cleve Barlow, Kwang O'o Lee, Bruce L. Brown

INTRODUCTION:

The research paradigm for this study follows the tradition of "matched-guise" studies established by Lambert (1967). The general idea of a matched-guise is to have a bilingual speaker produce voice samples in two different languages and have judges rate personality and intellectual qualities of the speaker based on these voice samples alone. Since the same person is rated in each language, the differences in his received rating for each linguistic "guise" are an index of the bias of raters towards those two languages.

Brown, Strong, and Rencher (1974) have extended this kind of "evaluative reactions to speech" methodology to an examination of the effects of computer manipulations of vocal paralinguistic properties. Figure 1 below is presented as a graphic illustration of synthetically manipulated voices using computer technology. The graph shows that persons were judged to be less benevolent and more competent as the rate of speech was increased. Figure 2 shows that both methods of manipulation of speech rate give the same results as those shown in fig. 1: as rate increases, benevolence ratings drop and competence
ratings increase; and as rate decreases, both competence and benevolence ratings drop.

____________________
Insert figures 1 and 2
____________________

While rate of speech was the primary manipulation in both the above citations, other studies incorporate dialect and intonation. (For a summary of early studies, see Brown, Strong, and Rencher, 1975.)

OBJECTIVES:

There are two principle objectives of this study: (1) to determine how manipulations (of intonation, of dialect, of spontaneous v.s. calculated responses, and of spoken v.s. written speech) affect judge ratings of the quality of the content of answers given by speakers of Hawaiian Pidgin (HP) and Standard American English (SAE) to a specific question; and (2) to demonstrate the notion that a total judgement is made (physiognomic perception), and then one looks for reasons to support one's choices.

For the first objective, the following directions were given to the judges: Try to ignore the sound of the person's voice - pronunciation, intonation, etc. - and rate only the quality of the content of the message. Further, inspite of the above direction, it was hypothesized that there would be significant results showing relative down-grading effects in judgements due to dialect and intonation manipulations. Such
ratings would be evidence that judges are not able to make
discriminations based on content (what the person says), but
that their judgements will be also largely determined by the
vocal qualities (how the person says something) of the speaker.
The actual content of the responses for a particular speaker was
the same for all manipulations.

METHOD:

Six native male Hawaiian Americans, residents of the Provo
and Orem city areas in Utah, were used as speakers in this
study. Each of the speakers was asked to write down an unposed
answer in Standard American English (SAE) to the following
question: "What is your opinion of racial quotas as a policy in
admitting minorities to colleges, and why?" No more than three
minutes was allowed for each speaker (Sp) to make his response.
After making the spontaneous response in SAE, each Sp was given
a fact sheet containing answers to the same question that other
persons had given.

With this added information, the Sps were asked to improve
upon their initial response. No time limit was set for Sps to
make the improvements, except it should be noted that no one Sp
took more than fifteen minutes to complete this task. So now,
each Sp had two answers to the question: first, an unposed or
spontaneous answer; and second, a more informative or calculated
answer, both written in SAE. Each Sp was then asked to
translate each of their two SAE answers to HP without altering
the content of each respective answer.

This procedure resulted in a total of four answers for each subject: (a) two in SAE (unposed or spontaneous, and improved or calculated), and (b) two in HP (unposed or spontaneous, and improved or calculated). The purpose here was to get all combinations of content and dialect. Each Sp was then audio-recorded on a Hitachi Model D-2335 cassette deck in the following manner.

The Sps were asked to recite each of their four answers in three different ways: (1) speaking in a normal voice, N, (2) speaking in a monotone voice, M, and (3) speaking in a highly expressive voice, H. As far as was reasonable, each Sp tried to maintain an even amplitude of voice for all three levels of intonation to limit influences that might later be judged as being due to variations in loudness.

The total number of recorded vocal samples for each Sp was 12, making available a total of 72 voice samples. It should be noted that a pertinent set of instructions was given to the Sps before the recordings began: they were cautioned not to make their voices too obviously monotonic (M) or overly highly expressive (H) thus causing a very unnatural sound to be produced. Rate of speech was generally consistent for within Sp samples. However, there was a noticeable slight decrease in the average rate for the monotonic samples compared with the other two parameters of voice intonation. Figure 3 shows the voice
manipulations for each speaker.

TESTING TAPES:

Six testing tapes containing 12 voices each were created from the 72 voice samples. Each Sp appeared twice on every test tape: (a) once in a SAE manipulation, and (b) once in a HP manipulation. A modified Graeco-Latin Square design (figure 4) was used to counterbalance speaker and manipulation position across the tapes.

JUDGE SUBJECTS:

The judge subjects (Ss) were 48 male and female undergraduate psychology students at Brigham Young University during the May/June 1981, spring term. Students were given extra credit for participating as judges in one of six groups. The six judging groups consisted of an average of 8 judges per group. The actual number of judges for each group were as follows: group 1 (8), group 2 (9), group 3 (8), group 4 (8), group 5 (7), and group 6 (8).

PROCEDURE:

Each judge (S) in a particular group was given 12 individual written answers and was asked to rate each one for quality (i.e., how good the answer was) by responding to a set
of ten questions about the answers (see figure 5). The judges marked a single point on a 9-point scale to indicate their judgement.

Insert figures 5 & 6

Next, after a brief interlude of approximately 2 minutes, each judging group listened to the corresponding vocal samples of the written answers (in the same order) played on a Crown reel-to-reel recorder, with a Kenwood KA-3700 audio amplifier and an electro-voice "Interface" speaker, and rated the quality of the answers on the same 9-point scale (see figure 6). Prior to the actual judging, however, three practice voices (consisting of at least one SAE and one HP sample) were played at the beginning of each tape to ensure instructions were understood and followed correctly by the judges.

One further task was asked of those judges who made extreme ratings, that is, if a judge gave a rating of either 1 or 9 in response to a question then he or she was asked to write down a brief statement as to why s/he made that choice. In order to help the judges do this, the test tape was replayed once more to refresh their memories.

DATA ANALYSIS AND RESULTS:

Two statistical procedures were adopted to analyse the data. First, a multivariate analysis of variance (MANOVA) was carried. All treatments had statistically significant results.
These results can be expected due to the large number of degrees of freedom for the error sums of squares for each treatment. However, by far the largest significant F-tests were those associated with dialect and then intonation treatments.

The second procedure involved the use of principal components factor analysis. The results of this analysis are used to give descriptive information to illustrate how each manipulation affects ratings. The principal components analyses allow one to make a two-dimensional graphic summary of the information in the 10 questions, as shown in figures 7 & 8 (see Brown and Bradshaw, 1982, for an explanation of how to read these figures). Overall, the two-dimensional representation accounts for 83% of the variance in the ratings on the 10 questions, and 17% remains as unique.

In figures 7 & 8, we can see that by far the greatest amount of variation is accounted for by the dialect manipulation. The SAE speakers were judged as being more wise, educated, and more knowledgeable, etc.; while the HP speakers were judged to be unwise, uneducated and backward, etc. High intonation sounded more compassionate in the spontaneous manipulation and low intonation was more compassionate for the calculated manipulation.

One final observation, that of the effect of adding voice,
is apparent from the results shown in figures 9 and 10.

Insert figures 9 and 10

With regard to both SAE and HP, the addition of voice tends to upgrade judgements on ratings of speaker knowledge. In addition, the increased intonation effect is that of making persons sound more compassionate.

CONCLUSION:

One of the major conclusions arising out of this study is that when one is operating in an English-speaking community it is imperative that one use the best spoken English he knows in order to be perceived in a favorable light. Although there is much talk about the equality of dialects, our results indicate that a judge can't separate content from dialect in judging why the total impression of a spoken answer is bad.

Also, it is important to realize that first impressions have a profound influence on judgements and perceptions of others. We tend to make a general assessment of things first, and it is only later, if we are prompted to, that we look for specific reasons for making our judgements, reasons that may have little to do with why we judged as we did.
REFERENCES


APPENDIX:
(Figures 1 - 10)
Fig. 1. Means over speakers of factor scores for the competence factor and the benevolence factor. (From Smith et al., 1975)
Factor scores averaged over speakers for normal voice and the six manipulations, superimposed upon the rotated factor pattern of 15 bipolar adjectives - "Childhood myths"

Factor scores of averaged ratings superimposed upon the rotated factor pattern - "Admissions quota"

Factor scores of averaged ratings superimposed upon the rotated factor pattern - "Proposition 13"

Note: For clarity only the right sides of the bipolar adjectives on the personality rating sheet are shown in these three figures. The opposite pole is obvious for most, but for "plain" the paired opposite is "good-looking". The vectors for the four ratings of the adequacy of the consent of each answer are labelled in all bold letters.

Figure 2 "Synthesized" and "Acted" Manipulation
<table>
<thead>
<tr>
<th>SPEAKER</th>
<th>STANDARD (1)</th>
<th>PIDGIN (2)</th>
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<tr>
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<td>LOW Intonation (1)</td>
<td>MEDIUM Intonation (1)</td>
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<td>Spontaneous (1)</td>
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Figure 3 Voice Manipulations
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**ORDER OF VOICE SAMPLES**

Figure 4 Latin Square Design of Six Test Tapes
Question: What is your opinion of racial quotas as a policy in admitting minorities to colleges? Why

Answer:

There shouldn't be any type of quotas. A person should be allowed to attend college if he is capable of passing the entrance exams, or demonstrates the ability to enter college and perform well.

(1) How wise is the answer?
very wise
unwise

(2) How much background knowledge does he have on the racial quotas question?
very much
little

(3) How sensitive is the speaker to the racial quotas issue?
very insensitive
sensitive

(4) From what he said, how would you rate his general intellectual ability?
very high ability
low ability

(5) From what he said, how educated would you judge him to be?
very much
tiny

(6) Rate his ability to express his ideas well.
very
poor

(7) How considerate does he seem to be of the views of other ethnic groups than his own?
very considerate

(8) How just and fair is his answer?
unfair and
fair and

(9) How compassionate is his answer?
compassionate
uncompassionate

(10) Overall quality of answer.
very poor
Outstanding

Figure 5 Sample of Written Answers
Question: What is your opinion of racial quotas as a policy in admitting minorities to colleges? Why?

(1) How wise is the answer?

very wise
unwise

(2) How much background knowledge does he have on the racial quotas question?

very much
little

(3) How sensitive is the speaker to the racial quotas issue?

very insensitive
very sensitive

(4) From what he said, how would you rate his general intellectual ability?

very high ability
very low ability

(5) From what he said, how educated would you judge him to be?

much education
little education

(6) Rate his ability to express his ideas well.

very poor
very good

(7) How considerate does he seem to be of the views of other ethnic groups than his own?

very inconsiderate
very considerate

(8) How just and fair is his answer?

unfair and unjust
fair and just

(9) How compassionate is his answer?

compassionate
uncompassionate

(10) Overall Quality of answer.

very poor
very outstanding
Figure 7  Dialect and Intonation Manipulation (Spontaneous)
Figure 8 Dialect and Intonation Manipulation (Calculated)
Figure 9 Effect of Adding Voice (Spontaneous)
Figure 10  Effect of Adding Voice (Calculated)