

LANGUAGE, EMOTION, AND EDUCATION

BY HARRY A. GRACE

IT IS COMMONPLACE THAT WORDS SPEAK AS LOUDLY AS ACTIONS. Psychological research has ably demonstrated that words can wound no less than sticks and stones. However, one question about language remains to be answered: Why do words arouse emotion? What is it about words which allows them to elicit deep emotion? It is the purpose of this paper to give a logical answer to that question, while exploring its importance for education. Once the logical answer is understood, empirical research should readily attest to its validity.

To answer why words arouse emotion, we must accept a common physiological definition of emotion. The term emotion shall refer to the arousal of the autonomic nervous system. When the ANS is aroused, we shall say that the individual has acted with emotion or is emotional.

One more assumption is necessary before the question can be directly answered. That assumption refers to the nature of reality. Physicists appear to agree with metaphysicians such as Bergson, Peirce, and Whitehead that reality is process. Reality is the flow of behaving. Both time and space are notions abstracted from that flow. So, too, any particular behavior or event is an abstraction from reality.

What we shall argue is this: that *any* abstraction from reality may elicit emotion. It stands to reason that notions of "time", "space", "behavior", and "event" are themselves abstractions. Moreover, they are verbal abstractions. These words can be used with comfort by investigators who respect their essentially abstract (emotional) nature. It is only when these words are used without regard for their abstract character that their emotion-eliciting effects become disastrous. Thus, it behooves an educator to accept the notion of reality as process and to become aware of the words he uses to abstract from reality.

LANGUAGE AND EMOTION

We have defined emotion and reality. Now we can understand how it is that words which are abstractions from reality can arouse emotion. To state the answer, let us consider an index of surprise first presented by Weaver.¹ Weaver seeks to specify the conditions under which an event may be surprising. In our terms, when words will arouse emotion. The formula he offers is

$$S.I._i = \frac{E(p)}{p} = \frac{p_1^2 + p_2^2 + \dots + p_n^2}{p_i}$$

The numerator $E(p)$ is the expected value of the probability, "the average amount

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¹W. Weaver, "Probability, Rarity, Interest, and Surprise." *The Scientific Monthly*, 67, 1948, 390-392.

of probability we can expect to realize per trial of the experiment. . . and the way . . . that the experiment actually comes out is to be considered surprising, according to whether the Surprise Index is large compared with unity or is not. The S. I., as so defined, obviously measures whether the probability realized, namely, p_i , is small as compared with the probability that one can expect on the average to realize, namely, $E(p)$. If this ratio is small and S. I. correspondingly large, then one has right to be surprised."²

What this formula says is that no matter how many events there are, if they are equally likely, the S. I. will be unity and emotion will not be aroused. This means that if our words referred to behaviors abstracted from reality which were equally likely, then the words would not elicit emotion.

Under what conditions would we then be surprised? Weaver suggests, "When an improbable event is so interesting that all its alternatives are lumped together as events so dull as to be indistinguishable, then the interesting event may thereby become a surprising event." For instance, when a man becomes interested in what happens to *him*, regarding all other people as "others," he is surprised whenever an event includes him. *His* father dies. *His* school wins a game. *He* flunks a test. Notice that he does not alter *reality* in lumping other events together, but he does alter the effect of any event upon his own nervous system.

To phrase the basic premise of this paper, words elicit emotion when (1) the events to which we attach words are not equally likely, but we consider them so and are interested in an unlikely event; or (2) we group equally likely events into unequal classes and are interested in an improbable class. Words are the means by which we classify events. The events themselves are abstractions from reality. Words, therefore, are at least one step more abstract than the events themselves. If we view events as having likelihoods or probabilities of occurrence, we see that words do not alter the probabilities of the events but rather, words affect the effects of events upon our nervous systems.³

²Weaver adds, "A Surprise Index of 3 or 5 is surely not large: one of 10 begins to be surprising: one of 1,000 is definitely surprising: one of 1,000,000 or larger is very surprising indeed: one of 10^{12} would presumably qualify as a miracle." These criteria of surprise should be taken as suggestive for empirical research. As you will note, should an individual dichotomize between himself and all other mortals, a miracle could happen rather easily. We further suspect that individuals differ one from another, and any individual may vary from one situation to the next with regard to thresholds of surprise.

³Consider an experiment whose outcome may be any of ten possible events. Assume the events are equally likely to occur. Let the probabilities of the events be: A .01; B .05; C .15; D .19; and E through J .10 each. Evaluating the S. I. when we are interested in event A, we have

$$S.I._A = \frac{.01^2 + .05^2 + .15^2 + .19^2 + 6(.10)^2}{.01} = \frac{.1212}{.01} = 12.12$$

Since 12.12 is greater than unity, we begin to be surprised. In this case we should be surprised if any events other than C or D occur. This is the first case for which the Surprise Index is relevant. The second case requires different assumptions.

Consider an experiment whose outcome may be any of ten possible events. Let the probabilities be equal: .10. Assume that we are interested only in event A and that we lump all of the other events together as not-A. Evaluating the S. I. we have

$$S.I._A = \frac{.10^2 + (.10 + .10 + .10 + .10 + .10 + .10 + .10 + .10 + .10)^2}{.10} = \frac{.10^2 + .90^2}{.10} = 8.2$$

Since 8.2 is greater than unity, we begin to be surprised. In this case we would begin to be surprised if we were interested in any single event or in any set of two, three, or four events. However, the amount of surprise would diminish as the number of events in the class increased.

LANGUAGE AND PREJUDICE

The arithmetic of this theory ought not prove a stumbling block to an intuitive understanding of the principles involved. The American pragmatist C. S. Peirce was one of the first to acknowledge the thin border between fact and fancy. He asserted that which we call "fact" was merely that which was less fanciful. We can readily agree with him. For in our terms he is saying that "facts" refer to phenomena which remain close to reality, less abstract, and less verbal, thus disallowing emotion to be associated with them. To follow further along the line of Peirce's reasoning, whenever words are attached to events, we *may* be influencing the effects of these events upon ourselves. It is for this reason that the process of abstraction, the use of language, requires awareness. Awareness which may be gained by self-education. Awareness which may be gained by experiment, keeping close to reality. Awareness which may be gained by the free flow of knowledge among investigators. The warning of Peirce was not against words, but against the circular effect which words may have upon investigators, such as Weaver's index of surprise so clearly demonstrates.

But the relation between words and emotion is much more than an academic matter. What we customarily call "prejudice" may be understood as nothing more than the emotion elicited by words. The layman uses words like "Jew," "Communist," "Negro," to refer to certain behaving organisms. These words are only forms of classification, and all of science begins with classification. How then does the layman's use of these words differ from the scientist's? For the layman these words arouse emotion. For the scientist they do not. Why? Because the scientist uses these words with respect to the likelihoods of events to which the words refer. The layman lumps all people together versus "Jews." Naturally, with such a classification, the layman will be surprised. What surprises him is not the event, "Jew," but his very own language! His misuse of words leads to his own surprise. The scientist differs from the layman in that he seeks to become aware of the underlying nature of events, including their likelihoods, thus minimizing his own surprise.⁴

LANGUAGE AND SELF

Educationally, we run head-on into this problem as soon as the child begins to learn language. The child's attempts to develop a concept of himself are accompanied by his learning of language. As he begins to attach different words to events, he gets a notion of what he is and what he is not. We recognize the period by calling it the age of "negativism," or more positively, "self-awareness." Actually, it is the period in which the child's emotions are being aroused by his new-found language skill.

In effect, the child learns self-satisfaction. He classifies himself apart from

⁴O'Reilly, C. T. and O'Reilly, E. J. "Religious Beliefs of Catholic College Students and their Attitudes toward Minorities." *The Journal of Abnormal and Social Psychology*, 49, 1954, 378-380. The conclusion of this paper has relevance for our position. "In view of the differences in religious attitudes among these students, all of whom listed themselves as Catholics, and because of the relationship between their religious attitudes and their attitudes toward minorities, it is evident that a mere statement of religious preference or church membership is not an adequate criterion to use when investigating attitudes toward minorities." We should say that to the degree that social scientists are careless about the words they use, to that degree they approximate the layman's emotionality with regard to language.

a sufficiently large not-self group and gains emotional reward. It goes something like this. John is fat. Noticing his own fatness and lumping the less fat children together, John feels bad. On the other hand, if John can be called "husky," the classification may make him feel good. Good or bad feelings stem from the same nervous system. In either case John becomes emotional about the class into which he has put himself.

Should John appear before a psychotherapist in later years, language will again be used to alter his self-satisfaction. For instance, he may complain of excessive masturbation, considering himself unusual by classifying himself apart from all other men. Therapy will stress acceptance of this habit. How? By convincing John that more people than he had ever before realized belong to his own class of masturbators. As the out-group diminishes and the in-group grows, John becomes less emotional over "masturbation," the word referring to some abstraction from reality.

Now turn the coin. Consider John as a person who reports for counsel with the complaint that his factory job makes him feel unimportant, just a cog in a big machine. The counselor will show him how to classify himself in a much smaller group, perhaps playing up John's religious affiliation, or his height, his nationality, or his age and experience. Then John can lump all others into one category and enjoy the reward that comes from classifying himself in a small group.

LANGUAGE AND EDUCATION

This brief discussion of therapy has a purpose. Today we exhort the teacher to counsel students. If we grant that words elicit emotion because of their abstraction from reality, then we must raise the question of the educational implications of counseling such as the kind described above.

In the world of sports, a world closely associated with education, the use of words to elicit emotion has reached its zenith. We have bowl games for the best and worst teams. We have goats as well as heroes. We have All-American teams picked by each wire service for each region of the nation, sometimes on the basis of fraternal affiliations, sometimes according to race or religion, sometimes for offense separately from defense. It is a sorry player who cannot place on at least one of these teams! Different classifications are used to abstract from reality such that emotional effects will be felt by everyone. In many ways this technique from the field of sports parallels the awards of the school. The teacher attempts to be the emotion-elicitor for each child, turning language inside out in order to satisfy everyone.

Does this practice satisfy needs or only habituate greater emotional needs within us? How does this use of words differ from indoctrination? We fail to see the difference between education founded upon these ruses and the education so prevalent in the totalitarian world. The child becomes accustomed to emotional responses to words. As an adult he is easy prey for the debunkers, demagogues, and dictators. These hucksters have long distorted reality in order to make men do their bidding.

Witness this emotion-arousing device used by a university band to commemorate United Nations Day a few years ago. As one squad of bandmen formed a circle on the football field the band played *Rule Britannia*. Then a

second squad interlocked its circle with the first as the *Marseillaise* was played. The Chinese anthem sounded and the third squad interlocked with the second. To the tune of *America* the fourth squad interlocked with the third. Four of the Big Five nations had been represented on the field by interlocking circles and their respective national airs. Finally, the last squad snaked its way onto the field. *Volga Boatmen* rang across the plains as the fifth squad formed a huge question mark.

Seventy thousand spectators cheered!

The crowd would have cheered for any one of the five nations—even the United States! Why did they cheer? Recall Weaver's formula. Each of the five nations was equally likely to appear. The audience was interested in the Soviet Union so that the other four nations were lumped together. Arithmetically, that yields a numerator of $4/5^2 + 1/5^2$ or $17/25$. The denominator is $1/5$. The Surprise Index is 3.4. The crowd became emotional because it had deluded itself—with the assistance of a university band.⁵

EDUCATION AND EMOTION

Education is a mass medium. The comparative study of education must convince us of this fact. The word "mass" has two meanings, however. First, education is usually presented to groups of people rather than to individuals. Second, educational methods saturate the senses. Thus, the term "mass" refers to a medium which simultaneously appeals to the various senses of many people. If our deductions about the relation between language and emotion are correct, then empirical tests may ascertain the effect upon our nervous systems of mass appeals. With the experience of dictatorship so current, we should find that language which simultaneously appeals to the different senses of many people has an almost pathological effect upon their behavior. Certainly no educator who values democracy could wish to encourage such undue emotion, let alone employ techniques which elicit it.

Our children must learn language. They must also learn that language is a man-made product designed to facilitate and not to inhibit reason. To facilitate reason, language must remain as unemotional as possible. Words must be servants and not the master of reality. Words must be scuttled when they do not serve reality, i. e., when their only disservice is to elicit emotion. Two methods are at our disposal. We can check our words against reality by experiment. And we can check our private language with that used by our fellowmen. Both of these ways ensure a reduction of abstraction and thus of *useless* emotion. Educators may continue to spearhead the search for sanity by empirical tests of the model presented in this paper, and by behaving in accord with the results of their own investigations. That is the challenge of the pragmatic maxim.

⁵The S. I. of 3.4 accounts for either the circles or the tunes. Taken together, as they were presented, we might expect a total shock upon the ANS of 6.8 or 11.56. This is an empirical question depending upon whether the mass media elicit emotion in an arithmetic or geometric manner. The excitement of being a member of a crowd might also affect the S. I. The "feelies" of Aldous Huxley's *Brave New World* are horrifying to contemplate with their simultaneous mass stimulation of sight, sound, touch, taste, and smell! Hitler, too, recognized the effect of massed listening. He required persons never to listen to his speeches privately, but always as members of a group. Who would have risked dozing or turning the dial during Hitler's speech when one sat as a member of a group?