

Relation Between Annoyance Reactions and Attitude to Source of Annoyance

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ANNOYANCE caused by external environmental factors such as noise and air pollution has been the subject of several investigations (1-3). Distinction was made between annoyance causing danger to health and annoyance that was not directly injurious. This paper is concerned with annoyance that was not directly injurious to health.

Data on the effects of the disturbing external environmental factors must be derived from the objectively and subjectively measurable reactions of the persons exposed to these factors (4). By objectively measurable reactions, we mean those reactions that are directly related to structural factors of the stimulus, while subjectively measurable reactions are annoyance reactions conditioned by subjective qualities in the exposed persons. The influence that socially conditioned factors, such as the attitudes of persons exposed, can have on the results is of particular interest in this study of discomfort. Presumably, persons with a negative attitude toward a source of discomfort exaggerate their

discomfort on exposure. A risk, though supposedly a smaller one, is that discomfort may be underestimated by those with a positive attitude (5).

Our paper deals with the influence of attitudes on annoyance reactions as well as the possibility of changing these reactions by changing the attitude toward the source of the annoyance. Two experimental investigations, one in the laboratory and one in the field, were designed to study the correlation between attitude and the incidence of annoyance.

Influencing Attitudes

Annoyance reactions, as stated, are conditioned not only by properties of the stimulus but also by subjective qualities of the exposed persons. So far, research into the relationship between these factors and annoyance reactions has not revealed any associations except those of sex and attitude toward the source of annoyance.

Groups with a positive or a negative attitude toward a source of annoyance have different degrees of annoyance occasioned by external environmental factors. However, the direction of the causal connection between these two variables (that is, whether the attitude depends on the experience of annoyance or the experience on the attitude) has not been studied. If the experience of annoyance depends on the attitude, it should be theoretically possible to reduce the subjective experience of annoyance

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from a particular source by influencing attitudes toward this source. In this study we knew nothing about the attitude of the subjects before initiating the process of suggestion.

In connection with the two experiments in the study, we held the following hypotheses: (a) that by creating different attitudes toward a source of annoyance, one can obtain different incidences of annoyance and (b) that it is possible to influence existing attitudes in people exposed to noise from aircraft and motor traffic and, as a result, change their reactions to the annoyance.

The arrangement, execution, and results of the laboratory and field experiments will be dealt with separately.

Laboratory Experiment

In this phase the effect on annoyance reactions was tested by creating positive and negative attitudes toward the source of annoyance. The study group was composed of 266 sociology students from the University of Stockholm. A positive attitude toward noise recorded from aircraft and motor traffic was attempted among 92 students and a negative attitude toward the same sources among 93 students. Eighty-one student controls were not subjected to suggestion. Attitudes were created by using the following different ways to describe the circumstances in which the noise had been recorded.

Aircraft. All groups were informed that aircraft noise to which they would be exposed had been recorded in a residential area near a

military airfield, that the aircraft would take off in the direction of the residential area, and that there would be about 40 takeoffs per day.

The "positive" group was informed that the air command had a large measure of understanding for the resident's problems and was willing to collaborate in a solution. The command would do all in its power to reduce noise problems and was grateful that no direct demand had been made for the curtailment of flights. Attempts would be made to avoid flying over the residential area.

The "negative" group was informed that the air command was uninterested in the noise problem but simply wished to insure that its training program was carried out. These students were told that the command had intimated no noise problem existed and that the residents were overwrought and nervous.

Motor traffic. All groups were told that the noise of two trucks passing was recorded on a road of the same kind that was to be built close to an existing residential area.

The positive-influence group was informed that the authorities were doing all they could to avoid future noise problems in the residential area. They would, if necessary, build an embankment to screen off the noise and plant quickly growing bushes and trees on it. In addition, if noise problems still existed, they would impose a speed limit on a section of the road. A fence, naturally, would be erected to prevent accidents.

The negative-influence group was told that the authorities had taken no action to provide

Table 1. Disturbance from aircraft noise and motor traffic in the various attitude groups

Reaction	Positive		Negative		Neutral	
	Number	Percent	Number	Percent	Number	Percent
Total.....	92	100.0	93	100.0	81	100.0
<i>Aircraft noise</i>						
Serious disturbance.....	13	14.1	55	59.1	29	35.8
Considerable disturbance.....	23	25.0	29	31.2	33	40.7
Not much disturbance, slight, or no disturbance.....	56	60.9	9	9.7	19	23.5
<i>Motor traffic</i>						
Serious disturbance.....	25	27.2	70	75.3	33	40.7
Considerable disturbance.....	33	35.9	21	22.6	39	48.2
Not much disturbance, slight, or no disturbance.....	34	36.9	2	2.1	9	11.1

any form of noise protection and that they were unwilling to consider either an embankment for screening off the noise or a speed limit.

Exposure to noise. The noises had been tape-recorded and were kept at a constant level of about 90 decibels (A), a fairly high level, during the recording.

About 10 minutes after the explanations the students listened to the recorded noises—two aircraft taking off in succession—and were then asked to put themselves into the situation of the residents and estimate the degree of disturbance to which the noise gave rise. We especially emphasized that it was the disturbing effect that should be estimated and that the results of their estimates might be used as a basis for deciding what noise level could be considered acceptable. To obtain a common basis for assessing the effect, the students were asked to choose one of the following reactions:

<i>Reaction</i>	<i>Air traffic</i>
Serious disturbance...	Airfield must be moved to a less populous area.
Considerable disturbance.	Traffic must be limited in some way; for example, no take-offs after 8 p.m.
Not much disturbance.	A disturbance, but one has to tolerate some discomfort.
Slight or no disturbance.	There are disturbances but nothing to bother about.
<i>Motor traffic</i>	
Serious disturbance...	Motor road must be moved.
Considerable disturbance.	Traffic must be limited in some way; for example, a speed limit.
Not much disturbance.	A disturbance, but one has to tolerate some discomfort.
Slight or no disturbance.	There are disturbances but nothing to bother about.

Differences in the incidence of annoyance among the three groups with different attitudes are shown in table 1. In the group with a positive attitude toward aviation, 39 percent indicated serious or considerable annoyance as compared with 90 percent in the group with a negative attitude. The corresponding incidence in the neutral group was 76 percent, which can be considered as the initial value for all three groups. The differences between the groups were statistically significant (chi-square equaled 69.390, and degree of freedom equaled 4).

Table 2. Incidence of annoyance caused by aircraft noise in experimental and control groups

Reaction	Total	Experimental group		Control group	
		Number	Percent	Number	Percent
Total....	176	90	100	86	100
Disturbed.....	117	49	54	68	79
Others.....	59	41	46	18	21
Seriously disturbed....	53	16	18	37	43
Others.....	123	74	82	49	57

For noise from motor traffic, the incidence of serious or considerable disturbance in the group with a positive attitude was 63 percent and in the group with a negative attitude, 98 percent; while that for the group with a neutral attitude was 89 percent. Differences in the incidence of disturbance between the attitude groups were statistically significant (chi-square equaled 66.673, and degree of freedom equaled 4).

The results of the laboratory experiment, summarized in table 1, verified the hypothesis that different attitudes are accompanied by different incidences of annoyance.

Field Experiment

This experiment tested the effect of changes in attitude toward aviation on the annoyance reaction to aircraft noise. The possibility of changing existing attitudes and thereby changing the incidence of annoyance was studied in the field experiment, using the population in a district exposed to aircraft noise. The subjects were randomly divided into two groups, experimental and control. The experimental subjects were influenced to adopt a positive attitude toward aviation by a questionnaire with leading and tendentious questions, by a positive introduction to this questionnaire, and by a positive letter of thanks enclosing a "propaganda leaflet" on aviation. The control group was not subjected to suggestion. Both groups were then interviewed 20 to 40 days later for annoyance reactions from the nearby airfield.

The results of this experiment (table 2) showed that the incidence of annoyance was

significantly lower among the subjects of the experimental group, 54 percent, than among those of the control group, 79 percent. (Chi-square equaled 10.887, and degree of freedom equaled 1.) The same tendency was found in the degree of annoyance. The incidence of "serious disturbance" was 18 percent in the experimental group and 43 percent in the control group. (Chi-square equaled 8.802, and degree of freedom equaled 1.)

Other results from the field experiment were relevant to the sphere covered by the hypothesis. These results indicated (a) that annoyance manifested as disturbed sleep at night was registered for 12 percent of the experimental group and for 24 percent of the control group, and (b) that other annoyance occurred at least once a week for 37 percent of the experimental group and for 64 percent of the control group. One result of the investigation showed that 28 percent of the experimental group and 54 percent of the control group "wanted to move from the area."

Discussion

In the laboratory experiment we attempted to create both negative and positive attitudes in groups in which the persons must be regarded as either neutral or at least differently affected by previous or current experiences of annoyance. The groups in the field experiment were regarded as having been exposed to a similar high degree of noise. Thus the laboratory experiment was interesting as a possible prophylaxis to the experience of annoyance, and the field experiment indicated the importance of propaganda in changing experiences that have been manifested.

Generalization of the results has both qualitative and quantitative aspects. The qualitative aspect, which is statistically verified, can most probably be generalized since the method used to create a particular attitude or to influence existing attitudes was not particularly provocative. Verification of the hypotheses does not, however, exclude the existence of a causal connection in the opposite direction. It is perfectly feasible that the experience of annoyance can create or reinforce an existing attitude.

The other aspect of generalization from these results concerns the possibility of estimating

the size of the effect. Here the experiments were of little help. A gradient for the strength of the influence could have been achieved in the laboratory experiment, but this would hardly have provided a basis for valid generalizations since the subjects were not a statistically representative selection from any average population. Nor can one generalize from the quantitative results in the field experiment. The possibility of changing the incidence of annoyance through suggestion may, for instance, be related to physical properties of the stimulus. In an extreme case it is unlikely that almost unbearable annoyances can be influenced by changes in attitudes. Moreover, it is difficult to assess how changes in the experimental method may affect the quantitative results.

Summary

Two experiments in Sweden have verified the following hypotheses: First, by creating different attitudes toward a source of annoyance, one can obtain different incidences of annoyance; and second, it is possible to influence existing attitudes in people exposed to noise from aircraft and motor traffic and, as a result, change their reactions to the annoyance.

The first hypothesis was tested in a laboratory experiment with three groups of subjects. One group served as controls, who were not subjected to suggestion, and the other two groups were influenced positively and negatively in their attitude toward aircraft and motor traffic. In the group with a positive attitude toward aviation, 39 percent indicated serious or considerable annoyance as compared with 90 percent in the group with a negative attitude. The corresponding incidence in the neutral group was 76 percent—which can be considered the initial value of all three groups.

For noise from motor traffic, the incidence of serious or considerable disturbance in the positive attitude group was 63 percent and in the negative group, 98 percent; while that for the neutral group was 89 percent.

The second hypothesis, tested with aircraft noise, was a field experiment with an experimental group and a control group. The results of this experiment showed that the incidence of disturbance was significantly lower among the subjects in the experimental group (54 per-

cent) than among those in the control group (79 percent). The incidence of serious disturbance was 18 percent in the experimental group and 43 percent in the control group.

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Tearsheet Requests

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Up From Poverty

The theory that poverty breeds poverty is disputed by a new national study of upward mobility among sons of farmers, laborers, and service workers.

The Social and Rehabilitation Service of the Department of Health, Education, and Welfare reported that as many as two-thirds of these sons in a sample studied by researcher, Dr. Oliver C. Moles, were found to have higher level and generally better paying jobs than their fathers, either in skilled, semiskilled, or white collar occupations.

A son's chances for job advancement were most favorable in cities of 50,000 or more, excluding the 12 largest metropolitan areas. More than eight in 10 of those who had moved to cities from rural areas held better jobs than their fathers at the time of the study.

Since a majority of sons from poor families had been able to move up, Moles' study provides little support to the proponents of the cycle of poverty theory—being poor is passed on from generation to generation.

The findings are among those incorporated in an article, "Up from Poverty," in the May-June 1970 issue of the Social and Rehabilitation Service magazine, *Welfare in Review*. The work is based on information from 3,000 heads of family "spending units" compiled for a nationwide study of economic behavior.

One cycle that cropped up in the study was the link between education, first full-time job,

and present job status. The more schooling a son had, the higher the level of his beginning job—and the higher that was, the better his current job. This finding underscores the importance of efforts to reduce the number of high school dropouts and increase the number of young people from low-income families who attend college.

Dr. Moles favors training programs that prepare men for higher level jobs, since programs that only provide low-level jobs to unemployed men do not seem to offer much prospect for improving their occupational and earning status.

In comparing the records of white and nonwhite (mostly Negroes) persons, Moles found that 80 percent of the white laborers' sons moved up, but only about 50 percent of the nonwhite did so. Discrimination and the lower occupational status of their fathers may have retarded the advancement of the largely urban Negroes included in the study.

The study sought to answer the question of why some men move up while others remain at the economic level of their fathers by examining such factors as education, place of residence, present family and family of birth, previous job experience, and geographic mobility.

Moles concluded that the factors studied are important contributions to job mobility and should be seriously considered in programs aimed at reducing poverty.