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BEHAVIORAL RECEPTIVITY TO DISSONANT INFORMATION¹

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The dependent variable was the amount of button pressing to produce momentary elimination of the static that partially masked tape-recorded messages. In 4 experiments, employing 112 undergraduates, it was repeatedly found that: smokers pressed more than nonsmokers to remove static from a message disputing the link between smoking and lung cancer; smokers made fewer attempts than nonsmokers to clarify a message affirming a smoking-cancer link; persons having considerable recourse to prayer and church attendance pressed less to clarify a message attacking Christianity than persons weakly committed to religion. Novelty, utility, relevance, and other factors affecting information receptivity were empirically analysed. It was concluded that dissonance theory adequately handles selective *attention* but that prediction of selective *exposure*, receptivity to future nonsupportive messages, requires taking into account the amount of supportive information already assimilated.

More adequate explanation and prediction of the effectiveness of communicative acts will be possible if selective self-exposure by prospective recipients can be better understood. Differential receptivity to messages, an ubiquitous aspect of communication processes, was a problem entirely bypassed by Hovland and the Yale group: “. . . all of the studies are concerned with problems encountered when an audience is available to a communicator and do not deal with the *prior problem* of securing . . . the audience [Hovland, Janis, & Kelley, 1953, p. 12].” More recently it has been recognized that experimentation dealing directly with self-exposure would help bridge the gap (Hovland, 1959) between laboratory and survey studies of communication and persuasion. The resulting efforts produced a literature, adequately reviewed elsewhere (Brock, 1965; Freedman & Sears, 1965), which dealt mainly with the hypothesis that persons will seek out supportive information and avoid nonsupportive information. When factors other than sheer supportiveness of the information were analytically or experimentally controlled, evidence for the widely assumed (c.f. references

in Brock, 1965) avoidance of nonsupportive information has been almost entirely lacking (e.g., Freedman, 1965; Mills, 1965a, 1965b; Sears, 1965). The recurrence of negative or ambiguous findings led Freedman and Sears (1965) to suggest that other investigators “turn away from questions dealing primarily with the selective exposure hypothesis [p. 94].” Their despairing but well-documented advice might prove to be sagacious strategy if, indeed, over the long term, nothing further can be done to provide theoretical and methodological clarification concerning information supportiveness as a determinant of receptivity. However, the present report, which describes four experiments employing a novel behavioral measure of information receptivity, presents data that are apparently congenial with the theoretically postulated (Festinger, 1957) “avoidance of dissonant information” and not easily explainable by rival formulations.

Selective exposure may have become a troubled area in social psychology research in part because methodology for measurement of the dependent variable has been insensitive to the actual tuning behavior of the recipient. In most previous studies the individual indicated his preferences among messages (e.g., Brock, 1965; Freedman, 1965; Mills, Aronson, & Robinson, 1959); in a few studies (Jecker, 1964; Sears & Freedman, 1965) the experimenter managed to record how much time the subject spent reading various messages. It is

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unclear why preference ratings of supportive and nonsupportive information, and to a lesser extent, exposure time, have been so invariably preferred as dependent measures. Surely there was *no theoretical necessity*: perhaps later investigators mindlessly adopted the dependent measures selected by the pioneers (Ehrlich, Guttman, Schonbach, & Mills, 1957; Festinger, 1957, pp. 162-176; Mills et al., 1959) and perhaps the discouraging ambiguity in the literature (Freedman & Sears, 1965) may be partially attributable to these insufficiently sensitive measures.

In real life, prospective recipients *tune out* messages which might impinge by inattention, by allowing other messages to supervene, by avoidance of the message source, by attempting to escape the context in which the message would surely be received, or by attempting to change the source so that it emits more desirable messages. In real life, prospective recipients may *tune in* impinging messages by heightening attention, by eliminating inputs which would mask or conceal the message, by seeking out the message source, by maintaining a role in the context in which the message would surely be received, or by encouraging the source so that it continues to emit acceptable messages. The foregoing taxonomy of information receptivity is far from complete; it is, however, suggestive of the range of behaviors which might plausibly serve as dependent variables in experimental study of the determinants of information receptivity.

Before deciding that this or that hypothesis about selective exposure should be abandoned, further experimental work can be directed at the many unexplored aspects of the phenomenology of tuning behavior. The important admonishments of Webb, Campbell, Schwartz, and Sechrest (1966) concerning "truth" and multiple methods should be heeded. The present measure of information receptivity was prompted by observation of persons who are eager to eliminate interfering static from a highly desired audio presentation, as, for example, a representative American male tuning his radio for a heavyweight boxing championship broadcast. In his discussion of a behavioral measure of television viewing, Lindsley (1962) summarized the Skinnerian operant literature, particularly studies of conjugate

reinforcement (the intensity of a continuously available reinforcing stimulus varies directly and immediately with the rate of response); he described a switch-press response somewhat comparable to the static-eliminating button-press response used here. The present hypothesis was that persons will press more frequently to eliminate masking static from consonant than from dissonant messages. The hypothesis was tested by exposing persons to a series of auditory messages accompanied by static and measuring the frequency of static-eliminating button pressing elicited by the messages. By adjusting the static so that it was masking but never noxious, differences in the consonance-dissonance of the messages might be reflected in static removal behavior. Six communications were designed to permit comparisons among messages that varied in dissonance, interest, relevance, and intelligibility. Each of four experiments employed the same messages and dependent variable; the last three of these experiments facilitated assessment of the generality and theoretical clarity of the relationships by varying the listeners' set, the message volume, and the order of presentation of the messages.

EXPERIMENT I

Method

Messages. Pilot work and previous experience (Brock, 1962, 1965) led to the decision to manipulate dissonance naturalistically by taking account of the subjects' chronic commitments to smoking and religious behavior and then exposing the subjects to messages which varied in supportiveness for smoking, prayer, and church attendance.² The messages, each 5 minutes in length, were presented in the following order. *Educational Films*, a dull recitation of the titles and playing time of some educational films, was taken from a film catalogue; pilot work indicated the need for a "filler" message while subjects adjusted to the listening situation. *Cancer Link*, an authoritative presentation of the evidence linking smoking to death from lung cancer, was taken from a booklet published by the American Cancer Society (1963). *Indian Neutrality*, a plea for Indian neu-

² Another strategy would require the subject to make a choice and then react to messages supporting the chosen and rejected alternatives (e.g., Jecker, 1964; Mills, 1965b). Postdecisional dissonance should produce differential receptivity to supportive and nonsupportive communications. Work employing behavioral measures of receptivity in the postdecisional paradigm is in progress at the first writer's laboratory.

trality, was spoken in Tamil,³ a language incomprehensible to every subject. *Christianity is Evil*, an attack on the hypocrisy and wrongdoing of organized Christian religion, was based on atheistic propaganda by Berkman (1920, pp. 72-74). *No Cancer Link*, an authoritative refutation of the arguments linking smoking to lung cancer, was taken from Northrup (1957) and Sanford (1964). *No Draft for College Graduates*, taken from Bures (1963), advocated that college graduates should be draft-exempt. As part of the procedure in Experiment I, the subject was given a list of the topics to read before exposure to the speeches. The list included an appropriate title for the speech, a statement of the principal conclusion, and identification of the speaker's nationality.⁴ Thus, the subject knew the nature of the speeches in advance, particularly that he would hear messages both opposing and supporting the smoking-cancer link.

Instructions to subjects. The listeners were given the following printed instructions.

College students are asked to judge the persuasiveness and sincerity of talks prepared by high school juniors and seniors. The talks you will hear were prepared for oral presentation by seniors and juniors at Iowa high schools. They will be spoken by a male American speaker or by a male foreign speaker. Adjust the earphones so they fit and listen to the series of brief persuasive talks. After each talk you will be given a rating sheet to rate the persuasiveness and sincerity of the speech. Since the talks were recorded on a small portable tape recorder there is considerable electrical interference. The interference can be "adjusted out" by pressing and then immediately releasing the control button. Use of the control several times in a row reduces somewhat the static and other interference noise.

After each of the six talks, the subjects rated the persuasiveness and sincerity of the speakers as described below. Subjects' ratings of the speeches were ostensibly the data of primary interest to the experimenter.

³ We thank D. V. Subashandran for his speech on Indian neutrality.

⁴ *Educational Films:* Education Films Which I Enjoy; No conclusions: films are briefly summarized; American speaker. *Cancer Link:* Cancer and Smoking; Conclusion—smoking leads to lung cancer; American speaker. *Indian Neutrality:* Neutralism for Indians; Conclusion—India should remain neutral from both East and West; Native Indian speaker (visiting foreign student). *Christianity is Evil:* Critical Analysis of Organized Christian Religion; Conclusion—Christian teaching is corrupt; American speaker. *No Cancer Link:* Critical Reexamination of Cancer-Smoking Evidence; Conclusion—no proven relationship between smoking and lung cancer; American speaker. *No Draft for Graduates:* College Graduates and the Draft; Conclusion—college graduates should be draft-exempt; American speaker.

Apparatus and procedure. There were two concomitant auditory inputs to the subject: static and spoken message. A tape recording of static was made by connecting directly into a radio tuned to a signal-free frequency at about 800 kilocycles. Both recorder and radio were about 6 feet from a 15-watt fluorescent light; considerable natural static was recorded in combination with that generated by the light. The static was played to the listener on a Model 464 Sony tape recorder with volume set at 6.5 for all four experiments. Decibel values, based upon characteristics of the electrical output to the subjects' earphones, ranged between 33.1 and 34.1 during the 5-minute static play. The spoken messages were played to the listener on a Model T-2000 Revere tape recorder with volume set at 4.5 for the first three experiments, and 3.5 for the fourth experiment. Decibel values for the speeches ranged between 32.5 and 34.1 with the average range for a particular speech about 0.7. Reducing the volume setting for the spoken messages from 4.5 to 3.5 in the fourth experiment lowered the decibel range to 30.7–32.7. This reduction in Experiment 4 will be explained. By pressing a button five times, 3 seconds of static-free communication were obtained, that is, the static input was interrupted for 3 seconds.

Measures and treatment of data. Button presses were recorded as pen deflections on a moving chart. The basic datum was the number of deflections occurring in the first complete 15 seconds of each of the 5 minutes required for a communication. The basic datum was subjected to a square-root transformation (Mosteller & Bush, 1954, pp. 326–327) because there was marked correlation between means and variances.

In order to maintain the guise of the research, subjects rated each communication immediately afterwards. A 75-dot scale with end points labeled "Not at all" and "Completely" accompanied each of the following six stems: "The talk I just heard was persuasive"; "The writer of the speech conveyed sincerity to me"; "The tone of the speech was interesting"; "The typical high school junior would probably consider the speech persuasive"; "The typical high school junior would probably feel the writer of the speech conveyed sincerity"; "The typical high school junior would probably find the speech interesting."

After the six communications had been audited and rated, the subjects filled out a final questionnaire requesting "frankness" and "accuracy." Among the seven questions, the following were pertinent:

How many times did you attend a place of worship (church, synagogue, etc.) in the past month? Give number____. How many cigarettes did you smoke yesterday? Give number____. How many times did you engage in some form of prayer during the past week? Give number____. On the average how many cigarettes do you smoke in a day? Give number____.

There were other comparably personal questions about coffee and gum consumption and preferences for courses. Finally, subjects were instructed:

Please list below the thoughts and problems that came to you while you were listening and evaluating the speeches. List everything that came to your mind. We are grateful for your frankness, your criticisms, and your helpfulness.

Classification and selection of subjects. Twenty-three undergraduate subjects, 10 males and 13 females, were drawn from introductory summer session psychology courses by telephone. Since a diversity of experimental appointment times could be offered, no refusals were observed and, with two callbacks at most, everyone initially contacted was eventually recruited as a subject. (The same population and recruit procedure were used in Experiments 2, 3, and 4.)

There were 16 nonsmokers and 7 smokers, persons who reported smoking one or more cigarettes "yesterday," and one or more on the average in a day. (Average cigarettes and cigarettes "yesterday" were nearly perfectly correlated in all four experiments.) For smokers, mean daily cigarette consumption was 21.7.

A pilot survey indicated that the present population could be divided naturally, albeit disproportionately, into those who prayed at least once daily and those who prayed less often; into those who attended church every week and those who attended less often. Four or more church attendances per month characterized the high churchgoers ($N=9$), and eight or more acts of prayer each week characterized the high prayers ($N=7$). The criterion scores for high church attendance (greater than three per month) and high prayer activity (greater than seven per week) were adopted a priori for each

of the four experiments. At the outset it was possible to advance good reasons for believing that churchgoing and praying *would* and *would not* be positively associated. Therefore, both kinds of behavior were used to classify commitment to religion.

Three subjects, of the 26 originally recruited for Experiment I, were omitted in the analysis. One did not follow instructions (by walking about the room, smoking, looking out the window), a second attempted to dismantle the response manipulandum, and a third arrived so late for his appointment that he had to be dismissed.

Summary of procedure. After putting on earphones, the subject read printed instructions (left with him by the experimenter), read the list of speech topics and conclusions (removed by the experimenter before the first speech), and listened to the first speech, pressing the static-removal button ad libitum. The experimenter returned and gave him a rating sheet for the first speech. After rating the first speech, the subject listened to the second speech, and so on. After the six speeches, the subject filled out a questionnaire measuring frequency of religious and smoking behavior. The subjects then responded to the open-ended inquiry about their reactions to the experiment and committed themselves to refrain from discussing their experience with prospective subjects.

Results

Table 1 shows number of static-removing button-press responses, as transformed, to six speeches by 23 undergraduates classified according to smoking behavior, church attendance, prayer frequency, and sex. Each score is a sum of responses for five 15-second segments. An analysis of variance (Winer, 1962,

TABLE 1
STATIC-REMOVING BUTTON-PRESS RESPONSES^a TO SIX SPEECHES BY LISTENERS CLASSIFIED
ACCORDING TO SMOKING ACTIVITY, RELIGIOUS BEHAVIOR, AND SEX: EXPERIMENT I

S classification	Speech topic											
	Education films		Smoking leads to lung cancer		Indian neutrality ^b		Christianity is evil		Smoking does not lead to lung cancer		No draft of college grads	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Smokers (7)	8.5	5.2	11.3	6.3	10.1	6.6	13.7	8.3	17.3	7.8	16.9	7.4
Nonsmokers (16)	9.4	4.4	13.5	7.0	10.8	7.0	12.0	8.3	12.2	6.5	11.6	7.7
Frequent churchgoers (9)	9.1	5.1	12.4	7.3	10.2	7.2	9.6	10.1	12.2	6.5	11.8	7.2
Infrequent churchgoers (14)	9.2	4.3	13.0	6.3	10.8	6.7	14.4	6.4	15.0	7.8	14.1	8.4
Pray frequently (7)	8.7	3.7	11.0	4.6	7.9	4.9	7.7	8.1	9.9	4.9	9.1	7.0
Pray infrequently (16)	9.3	4.6	13.6	7.3	11.7	7.3	14.6	7.6	15.4	7.5	15.0	7.8
Men (10)	9.7	4.8	14.9	7.0	12.8	5.9	14.7	8.9	16.3	7.7	15.5	8.4
Women (13)	8.7	4.4	11.2	6.1	8.9	7.1	10.8	7.5	11.8	6.3	11.4	7.3
Combined (23)	9.1	4.5	12.8	6.6	10.6	6.8	12.5	8.2	13.7	7.2	13.2	7.9

Note.—Ns in parentheses. See definitions of classifications in text.

^a After being subjected to a square-root transformation (Mosteller & Bush, 1954, pp. 326-327).

^b Spoken in the Indian language, Tamil. See text.

p. 112) of the data in the bottom row yielded an F for speech topic that was significant beyond the .01 level. Hence, the communications elicited different amounts of button pressing. If the button-press device measured eagerness to clarify a communication, less pressing should be elicited by the boring Educational Films speech and the incomprehensible India Should be Neutral. Responses to Educational Films were lower than to the other five speeches. This statistically reliable ($p < .01$, Winer, 1962, p. 112) effect could be attributed to "warm-up" and initial diffidence about pressing the button as well as to the aforementioned boring quality of the message. Subjects' postexperimental comments indicated most found the films speech "boring," "not interesting," etc., and many reported being unsure about what they were supposed to do until the beginning of the second speech.

The overall rate of response to the foreign language message (in Tamil) was 10.6, a value reliably lower ($p < .05$) when compared with means of the other messages. Both the Educational Films and Tamil button-press results encouraged interpreting the static-removal behavior as information receptivity.

The hypothesis was that persons will press more frequently to eliminate static from consonant than from dissonant messages. The 7 smokers (four males) were *less* eager—mean number of presses was 11.3—to clarify Smoking Leads to Lung Cancer than the 16 nonsmokers, 13.5 presses; the smokers were *more* receptive to Smoking Does not Lead to Lung Cancer, 17.3, than the nonsmokers, 12.2. The interaction for the smoking (smokers versus nonsmokers) and communication (leads versus does not lead) factors was reliable. An analysis of variance (Winer, 1962, p. 376) yielded an interaction F of 17.38 ($df = 1, 21$), which is significant beyond the .01 level.

A further test of the hypothesis was to examine the static-removal behavior elicited by Christianity is Evil from persons who differed in devotedness. The relevant data are contained in the third to sixth rows of Column 4 in Table 1. Infrequent churchgoers were more eager to clarify the antichurch message than frequent churchgoers. The dif-

ference between the mean button-press scores yielded a t of 1.40, which approached reliability. Persons who prayed frequently were less receptive to Christianity is Evil than persons who prayed infrequently; the one-tailed t was significant at the .05 level. The dissonance-avoidance hypothesis thus received some additional, albeit weak, support: high commitment to religious behavior led to lowered receptivity to a communication attacking Christianity.

Feather's (1963, p. 162) contention that perception of relevance importantly governs information receptivity was disputed by Brock (1965, p. 17). In the present study it was assumed that a message about draft abolishment would be perceived as more relevant by men than women. The direction of the difference in means was in accord with the relevance view as can be seen in the seventh and eighth rows of Column 6 of Table 1. Men pressed the button to hear Abolish Draft more than did women. However, the difference did not reach significance at the .10 level, and there was a marked tendency for men to press the button more vigorously, regardless of speech topic. The relevance view might also predict more interest by smokers than nonsmokers in *both* communications about smoking, and more interest by very religious persons in the communication about Christianity. Since both predictions were unsupported, the relevance notion advanced by Feather (1963) did not fit the present data very well.

Discussion

The results of Experiment I, while encouraging, were certainly not decisive. Further verification was required in the light of the following criticisms. First, it could be complained that the obtained results were in some degree an artifact of order of presentation of the communications. Second, comparison of the smokers' with nonsmokers' data in Rows one and two of Table 1 showed smokers slightly more interested in Christianity is Evil and decidedly more interested in Abolish Draft. Perhaps some organismic factor exists which makes smokers more interested in unconventional advocacy and, in the summer of 1964 when the present data were collected,

Smoking Does not Lead to Lung Cancer was certainly a minority point of view. In this fashion the interaction between smoking and speech topic could be explained without recourse to dissonance theory. Third, there is the possibility that differences in subjective utility accounted for the results. In terms of an utility interpretation, smokers avoided the Smoking Leads to Lung Cancer message because that message offered no practical assistance, while the opposite message was sought out because it seemed useful in combating a widely held but discrepant belief. Similarly, persons who felt they were neglecting their religious obligations would find it useful to know information which supported their indifference. Other writers (Festinger, 1964, Chapter 4; Freedman, 1965; Freedman & Sears, 1965) have presented reasoning and data to show that perceived usefulness may be a determinant of information receptivity. Fourth, an unforeseen problem arose in the collection of the data. Many subjects "learned" the response-reinforcement contingency, that is, 3 seconds of static-free message for five presses. Once that contingency was mastered the interfering static could be avoided almost automatically. Postexperimental discussion with the subjects confirmed that many listeners concerned themselves in part with making the "correct" number of presses to keep the messages static free. It was encouraging, of course, that interpretable results were obtained in spite of this "learning set" artifact.

EXPERIMENT II

Method

The following modifications were introduced in the procedure and design of Experiment I. In the second, third, and fourth experiments, subjects were randomly assigned to one of four patterns of order of presentation of the communications. The four numerals following the titles of the communications indicate the order of presentation in the first, second, third, and fourth patterns. The first pattern was the same order of presentation used in Experiment I: Educational Films, 1,1,1,1; Smoking Leads to Lung Cancer, 2,5,5,2; India Should be Neutral, 3,3,6,6; Christianity is Evil, 4,4,4,4; Smoking Does not Lead to Lung Cancer, 5,2,2,5; Abolish Draft of College Graduates, 6,6,3,3. The patterns permitted analysis of the possible effects of order of presentation of the pro- and antismoking messages and of early versus late placement of the abolish draft

message. Educational Films was retained in first position in each pattern since it was the only message that could be "wasted" while subjects adjusted to the listening situation. The other five messages were involved in tests of the hypotheses and alternative interpretations.⁵

In Experiment II an attempt was made to test a utility interpretation of static-removal behavior. As supplement to the instructions of Experiment I, the experimenter told the subject "In addition to rating the persuasiveness and sincerity of each speech, you will be asked to analyze the content of one of the speeches. You have been assigned one speech for detailed analysis of the content." In the standard list of speech topics given to the subject before listening began, a special instruction was indicated for one of the topics, either Educational Films or Abolish Draft. The special instruction was, "Give an analysis of the content." Finally, a card was left with the subject on which the words "college students and the draft" or "educational films" appeared in the bracketed space. On the card was typed "You have been assigned to write a content analysis of a speech on []. The value of your written analysis will depend upon an accurate understanding of the speech." At the end of the listening session, that is, after all six speeches had been audited and rated, the subjects were given the following form. "Summary of Analysed Speech: Instructions: Write two short sentences summarizing the two most important points in the speech. Be brief."

In Experiment I, 3 seconds of static-free communication were obtained for five button presses. By appropriate rewiring involving a stepper relay, the "correct," that is, static-interrupting, number of button presses was made to vary randomly from one to nine. Thus the subject could not learn a contingency between presses and static elimination.

From the same population used in Experiment I, 34 subjects were drawn, 12 males and 22 females. There were 10 smokers and 24 nonsmokers; mean daily cigarette consumption was 11.8. Six subjects, of the 40 originally recruited for Experiment II, were omitted in the analysis. One was dismissed after he accidentally looked in on the experimenter and saw the two tape recorders, event recorder, etc. Two refused to continue midway in the experiment, one fell asleep during the experiment (she explained she had studied most of the previous night), and another wrote letters to her family instead of listening to the speeches. One arrived so late for his appointment that he had to be dismissed.

⁵ This admittedly crude approach to controlling order of presentation was used instead of a Latin square because the occurrence of carry-over effects could not be confidently discounted. For example, smokers receiving Smoking Leads to Lung Cancer beforehand might hear Smoking Does not Lead to Lung Cancer with more accumulated dissonance than smokers receiving the no-link message without prior exposure to the disturbing cancer-link message.

Results

A table, not presented here, was composed for Experiment II in the format of Table 1. Comparison of the data from Experiment I and Experiment II showed no overall differences in button-press rate. A statistical test confirmed that the order of magnitude of button pressing was approximately the same in both experiments. Hence, introduction of the randomizing device between button presses and procurement of static-free communication did not alter the volume of responding. Postexperimental questioning confirmed that the unwanted "learning set" artifact of Experiment I had been removed. As in Experiment I, the communications elicited reliably different amounts of button pressing. And again, Educational Films and India Should be Neutral elicited reliably less pressing than the other communications.

To check on the possible effects of order of presentation of the speeches, responsivity to the six communications was considered under each of the four patterns described in the Method section. An appropriate analysis of variance showed that order of presentation did not affect button-press rate. That is, whether Smoking Leads to Lung Cancer and Smoking Does not Lead to Lung Cancer appeared in fifth or second position made no difference. Similarly, early or late presentation of India Should be Neutral and Abolish Draft of College Graduates had no effect. Responsivity to Christianity is Evil, which always appeared in fourth place, was unaffected by preceding patterns of communication or-

der. These negative findings were unsurprising since the procedure required the subject to rate each speech before listening to another speech, and the ratings focused upon speech style rather than content. Thus, the speech(es) that had gone before and the speech(es) to follow probably did not affect the subject's receptivity to the current speech.

The subjects were told that they would have to analyze the content of one of the speeches, either Educational Films or Abolish Draft. It was expected that button pressing to the speech involved in a subsequent task would be elevated in comparison to the rate of pressing to the same speech when it had no subsequent utility. Educational Films was the content-analysis topic for 14 subjects, and their mean button press was 9.8, a value not reliably higher ($p > .50$) than the 8.4 obtained from the control subjects (for whom Abolish Draft was the content analysis topic). Abolish Draft was the analysis speech for 20 subjects; the mean response was 10.5, a value actually lower, but not reliably, than the 13.6 elicited from 14 subjects who were not led to expect that Abolish Draft would be used in a subsequent task. Subjects did not forget which speech they were supposed to analyze; all correctly wrote two pertinent summarizing sentences at the end of the listening session. In sum, there was clear failure to increase button pressing by making subjects believe their careful listening to selected speeches would be useful later on.

Data pertinent to tests of the dissonance-avoidance hypothesis are shown in the first and second columns of Table 2 and Table 3.

TABLE 2

STATIC-REMOVING BUTTON-PRESS RESPONSES^a TO SMOKING LEADS TO LUNG CANCER (CANCER LINK) AND SMOKING DOES NOT LEAD TO LUNG CANCER (NO LINK) BY LISTENERS CLASSIFIED ACCORDING TO SMOKING ACTIVITY: EXPERIMENTS 2, 3, AND 4^b

	Experiment 2		Experiment 3		Experiment 4	
	Cancer link	No link	Cancer link	No link	Cancer link	No link
Smokers <i>M</i>	11.5	14.8	10.3	14.6	14.7	18.6
<i>SD</i>	3.7	3.3	5.8	2.3	3.7	2.1
<i>N</i>	10		13		9	
Nonsmokers <i>M</i>	13.4	12.6	13.7	14.0	18.0	16.8
<i>SD</i>	5.8	8.7	5.1	4.6	2.0	3.5
<i>N</i>	24		15		18	

^a After being subjected to a square-root transformation (Mosteller & Bush, 1954, pp. 326-327).

^b See description of experiments in text.

TABLE 3

STATIC-REMOVING BUTTON-PRESS RESPONSES^a TO CHRISTIANITY IS EVIL BY LISTENERS CLASSIFIED ACCORDING TO CHURCH ATTENDANCE AND PRAYER FREQUENCY: EXPERIMENTS 2, 3, AND 4^b

Listeners	Experiment 2			Experiment 3			Experiment 4		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
Frequent churchgoers	7.3	5.2	6	11.1	5.8	13	15.1	1.7	8
Infrequent churchgoers	12.6	5.8	28	14.2	4.4	15	19.4	1.0	19
Pray frequently	7.0	5.2	8	9.1	6.4	7	15.3	2.2	7
Pray infrequently	13.1	5.0	26	14.0	4.3	21	19.1	1.7	20

^a After being subjected to a square-root transformation (Mosteller & Bush, 1954, pp. 326-327).

^b See description in text.

The hypothesis was that persons will press more frequently to eliminate static from consonant than from dissonant messages. The 10 smokers (4 males) pressed *less* to clarify Smoking Leads to Lung Cancer, $M = 11.5$, than the 24 nonsmokers, 13.4; the smokers were *more* receptive to Smoking Does not Lead to Lung Cancer, 14.8, than the nonsmokers, 12.6. A test of the interaction for the smoking (smokers versus nonsmokers) and communication (cancer link versus no link) factors yielded an F of 5.47 ($df = 1, 32$) which is significant at the .05 level. Thus, the interaction of Experiment I was reproduced in Experiment II, although not as strongly. As in Experiment I the interaction pattern was obtained only for the categorization of smokers. In the first three columns of Table 3 it can be seen that frequent churchgoers and frequently praying persons were less receptive to Christianity is Evil than infrequent churchgoers and infrequently praying persons. The one-tailed t 's were significant at the .05 and .01 levels, respectively.

Whether persons are more receptive to seemingly relevant communications was checked again. As in Experiment I men pressed the button more than women for all communications including the Abolish Draft message. For the Abolish Draft message, however, the difference in favor of men yielded a t of .4 which, of course, is far from significant. Smokers were not more receptive to both messages about smoking, and persons high on the religiosity attributes were not more eager to clarify the message about religion. Again, Feather's (1963) relevance concept did not obtain support.

In Experiment I it was noted that smokers were not only more receptive than nonsmokers to Smoking Does not Lead to Lung Cancer but also to Christianity is Evil and Abolish Draft. In Experiment II smokers continued to be unreliably more responsive to Christianity is Evil, but this time it was the nonsmokers who pressed more on the average to clarify Abolish Draft. Hence, the earlier suggestion that smokers are attracted to unconventional advocacy appeared less likely.

Discussion

For the samples used in Experiments I and II the proportion of persons classified as smokers was the same, .30. However, in Experiment II reported mean cigarette consumption was about half that in Experiment I. Although this difference was not statistically reliable (two-tailed t -test $p < .20$), it may have been large enough to account for the fact that the Smoking \times Communications interaction was not as strong here as it was earlier. Smoking Does not Lead to Lung Cancer and Smoking Leads to Lung Cancer should be more consonant and dissonant, respectively, in proportion to the magnitude of commitment to smoking. Pertinent correlational analyses are presented later.

In sum, order of presentation, relevance, attraction to unconventional positions (novelty), and subjective utility seemed to be having negligible effects in the present paradigm. It was possible, however, that the manipulation of utility expectation was weak. Experiment III accordingly employed a stronger induction of perception of the subsequent usefulness of selected communications.

EXPERIMENT III

Method

Experiment III differed from Experiment II only in the attempt to elicit increased button pressing as a function of manipulated subjective utility. The "content analysis" instruction was continued but the card left with the subject during audition of all speeches was a signed commitment form. The form read "Psychology Research Project: Analysis of Speech. Instructions: below write the topic of the speech you will analyse and sign your name. Topic_____. Signature_____." As in Experiment II, the analysis topic was either "college students and the draft" or "educational films."

From the same population used in Experiments I and II, 28 subjects were drawn, 19 males and 9 females. There were 13 smokers and 15 nonsmokers; mean daily cigarette consumption was 9.9. Twenty-seven subjects, of the 55 originally recruited for Experiment III, were omitted in the analysis. One was dismissed after he accidentally looked in on the experimenter and surveyed the experimental equipment. One subject left the room without explanation after the third speech, and another read a text, instead of listening, and acknowledged she had been studying for an exam. Three subjects were foreign students who did not seem to understand the instructions and rating forms. Twenty-one were omitted because they gave one or fewer button-press responses to two or more communications. Why 21 subjects responded insufficiently in Experiment III turned out to be an unanswerable question. Experiment III was conducted during the hottest part of a hot Iowa summer in unairconditioned facilities, and perhaps the extreme heat produced lassitude and/or affected the sound transmission in some unknown fashion. (Sixteen of the 28 subjects retained in the analysis complained of heat in their postexperimental comment; the number so complaining was negligible in the other three experiments.) In any event, there was no satisfactory explanation.

Results

A table, not presented here, was composed for Experiment III in the format of Table 1. Overall button pressing was of the same magnitude as in Experiments I and II, the communications elicited reliably different amounts of button pressing, and Educational Films and India Should be Neutral elicited reliably less response than the other communications. There were no effects of order of presentation.

Leaving a signed commitment form with the listener surprisingly had no effect on his receptivity to the speech he committed himself to analyze. Educational Films was the emphasized speech for 15 subjects and Abolish

Draft, for 13 subjects. Educational Films elicited 9.7 presses when it was emphasized and 11.0 when it was not; Abolish Draft elicited 13.3 when it was emphasized and 11.8 when it was not. These differences did not approach reliability. Again, as in Experiment II, all subjects correctly wrote two summarizing sentences showing that they had not forgotten which speech was to be analysed.

The interaction F for the smoking (smokers versus nonsmokers) and communication (cancer link versus no link) factors was 4.37 ($df = 1,26$), which is significant at the .05 level. The means and standard deviations are shown in the third and fourth columns of Table 2. Thus, the dissonance-avoidance hypothesis continued to be reliably, albeit somewhat weakly, supported: smokers were more eager to clarify no link than cancer link and nonsmokers showed a very slight trend in the opposite direction. The results for the Christianity is Evil message, as shown in the fourth, fifth, and sixth columns of Table 3, were also supportive: frequent churchgoers pressed the button less than infrequent churchgoers (one-tailed t -test $p < .10$); frequently praying persons were less receptive than persons who prayed infrequently (t -test $p < .025$).

Males continued to press the button more vigorously than females but the difference in favor of males for the Abolish Draft message did not approach reliability. Other tests of the relevance hypothesis, as earlier described in Experiments 1 and 2, were similarly unconfirmatory here.

It was noted above that data from 21 subjects were excluded because they gave one or fewer button-press responses to two or more communications. Additional analyses, including these cases, were performed even though inclusion of these 21 cases led to some non-normality in the data. Most of the previous results were reobtained: the communications elicited reliably different amounts of button pressing; Educational Films and India Should be Neutral elicited reliably less response than other communications; no effects of the utility emphasis were observed; and the interaction F for the smoking and communication factors was 4.17 ($df = 1,47$), significant at the .05 level. However, the effects of church-

going and prayer upon response to Christianity is Evil did not approach reliability when the 21 low responders were included.

Discussion

The proportion of persons classified as smokers in Experiment III was .46, a higher value than the .30 of the earlier experiments. Here mean cigarette consumption was 9.9, a lower value than the reported amounts of 11.8 in Experiment II and 21.7 in Experiment I. The obtained F for the Smoking \times Communications interaction was also lowest here, suggesting again a relationship between degree of behavioral commitment to smoking and differential receptivity to the pertinent communications.

Experiment III repeated the failure of Experiment II to affect static-removing button pressing by manipulation of subjective utility. That persons will be especially receptive to messages which are useful to them is a belief that is both plausible and that is held by other students of selective exposure (e.g., Festinger, 1964, Chapter 4). Since "common sense" and experts appeared in agreement on the utility hypothesis, it seemed necessary to try again to induce differences in expected utility that would measurably affect the dependent variable. In the fourth experiment, expected utility was induced in a more powerful fashion than previously.

Experiment IV was also used to shed light on the generality of the repeated findings in support of the dissonance-avoidance hypothesis. One readily modifiable dimension was the loudness of the message relative to the static input. It seemed worthwhile to show that the present results, even though restricted to a type of operant responding, were not limited to particular decibel values.

EXPERIMENT IV

Method

Experiment IV differed from the earlier experiments in that the volume setting for the spoken messages was reduced from 4.5 to 3.5 with the consequence of reducing the decibel range about two decibels, from about 33 to about 31. This reduction made the static considerably more masking.

In Experiment IV, in order to emphasize the usefulness of one speech, the subject read the following printed instructions. "Supplementary Instructions. In

addition to rating the persuasiveness and sincerity of each speech, you will be asked to take a fact quiz on one of the speeches. You have been assigned one speech on which you will be quizzed." On the standard list of speech topics, a sentence accompanied either Educational Films or Abolish Draft: "You will be quizzed on the content of this speech." Further, the subject was given a sample quiz question.

You have been assigned a fact quiz for the speech on (college students and the draft). How well you do on the quiz will depend on an accurate understanding of the speech. Here is a sample question: Sample Question 1. The speech on college students and the draft was chiefly concerned with ROTC. True False.

If Educational Films was the quiz speech, the words "on educational films" appeared in the parentheses and the sample question was "The speech on educational films emphasized jet aircraft. True False." Finally, the subject was given a commitment form to sign. "Below write the topic of the speech on which you will be quizzed and sign your name. Topic_____ Signature_____." The commitment form was retained by the listener as well as the sample question.

From the same population used earlier 27 subjects were drawn, 21 males and 6 females. There were 8 smokers and 18 nonsmokers; mean daily cigarette consumption was 14.8. Four subjects, of the 31 originally recruited for Experiment 4, were omitted in the analysis because they had information about the experiment prior to their participation.

Results

Increasing the "maskingness" of the static in Experiment IV had a marked effect: button pressing was significantly greater ($p < .01$) than before in all categories and cells of the data analysis. The significant findings of the earlier studies were replicated; they are listed in the first and third paragraphs of the results for Experiment III above and need not be repeated again here. The data from Experiment IV are shown in Tables 2 and 3. The interaction F for the smoking and communication factors was 10.68 ($df = 1,25$), which is significant at the .01 level. Receptivity to Christianity is Evil was greater from persons low in church attendance ($p < .01$) and in prayer ($p < .01$).

The attempt to increase receptivity to selected speeches by leading subjects to expect a quiz on the speech topic, failed. Educational Films was the quiz speech for 14 subjects and Abolish Draft for 13 subjects. The

former speech elicited 13.9 presses when it was a quiz topic and 15.6 when it was not; the latter elicited 18.8 presses when it was a quiz topic and 17.4 when it was not. These differences were unreliable. The relevance-receptivity hypothesis again went unsupported. Females' responsivity to Abolish Draft was unreliably greater than that of the males and the other tests of the relevance notion were negative.

Discussion

The elevation of button pressing in response to reduced loudness of the messages showed that the dependent behavior was aimed at obtaining *clear* communication. *That persons worked more to clarify messages having a priori consonant rather than dissonant face value is a result considered obtainable with different combinations of message and static volume.* Our resources did not permit us to explore limits.

Lowering the loudness of the speeches increased button pressing and also, it seemed, reduced variability. The variances computed for Experiment IV were, on the average, about half those obtained earlier. An entirely satisfactory explanation for this reduction has not occurred to the writers. It was possible that fatigue imposed a ceiling on pressing, and thus a general increase in button pressing would produce a distribution of scores that is foreshortened in its upward tail.

The proportion of persons classified as smokers here was .33, a value close to the .30 obtained in Experiments I and II. It was noted that mean daily cigarette consumption here, 14.8, was less than consumption in Experiment I and more than in Experiments II and III. Similarly, the F value for the Smoking \times Communications interaction was second in magnitude. Thus the four experiments yielded a close correspondence between magnitude of the Smoking \times Communications interaction and degree of behavioral commitment to smoking. However, this relationship between commitment to behavior and differential receptivity to consonant and dissonant messages appeared to be specific to the smoking issue. Appropriate analyses showed that the differential effect of devotedness on responsivity to Christianity is Evil did not increase

with increase in church attendance and prayer frequency.

Freedman and Sears (1965) wrote: "The evidence strongly supports the contention that information which is expected to serve a practical purpose is preferred to less useful information [p. 82]." Although college students presumably will pay attention to information in order to do well on a subsequent quiz, Experiment IV failed to show an effect of perceived utility. Postexperimental interviews showed that subjects expected the quiz and knew the quiz topic. It may still be "true" that persons are especially receptive to useful information but the current failures to demonstrate such receptivity will have to be accounted for in any comprehensive statement of the utility-receptivity doctrine.

OVERALL ANALYSES

Correlations

The above-noted relationship between magnitude of commitment to smoking and strength of the Smoking \times Communications interaction was checked further by internal analyses. These correlational analyses employed the entire sample of smokers ($N = 39$) for the four experiments in order to have a sufficient number of cases. The product-moment correlation between number of cigarettes consumed and button pressing to clarify Smoking Leads to Lung Cancer was negative ($-.20$), but only in the male subgroup ($N = 23$) did the r reach statistical significance ($r = -.47$, two-tailed $p < .05$). The product-moment correlation between smoking and button pressing to clarify Smoking Does not Lead to Lung Cancer was positive for both sexes, but only the combined r approached statistical reliability, $r = +.26$, two-tailed $p < .10$. Hence, for males at least, smoking was inversely related to receptivity to the dissonant cancer-link message and positively related to receptivity to the consonant no-link message. Both findings, of course, supported the hypothesis and corroborated earlier results.

A correlation was computed between church attendance and prayer frequency in each experiment and over the entire series ($N = 112$). In each experiment, the obtained r was

not reliably greater than zero and the overall r , +.23, though statistically significant with $df = 110$, was considered insubstantial enough to justify the a priori decision to treat church attendance and prayer as separate indexes of religious commitment. In each of the four experiments the correlation between church attendance and prayer frequency, on the one hand, and receptivity to Christianity is Evil, on the other, was negative. None of these correlations, however, attained the .05 level of reliability. The overall r , with $df = 110$, between church attendance and receptivity to Christianity is Evil was $-.20$, a value reliable at the .05 level; the overall r between prayer frequency and receptivity to Christianity is Evil was $-.28$, reliable at the .01 level. These results supported the dissonance-avoidance hypothesis.

Analyses of Variance

The results for Experiment I (Table 1) showed an overall difference between men and women in amount of button pressing, and that men approached the cancer issue differentially. The overall correlational analysis suggested that the dissonance-avoidance effect was restricted to male smokers. Furthermore, the experiments that included the greatest proportion of males (Experiments I

and IV) had the heaviest smokers and showed the strongest interaction between the smoking and communication factors. Thus, in the present series of experiments, sex and extent of smoking may have been confounded in their effect on button pressing. Sex and smoking may also have been confounded with church attendance and prayer.

In the first of several overall ($N = 112$) analyses of variance (unweighted-means solution), experiment, smoking, and sex were between-subject factors, and communication topic (Smoking Leads to Lung Cancer versus Smoking does Not Lead to Lung Cancer) was a within-subject factor. There was a reliable ($p < .01$) main effect of sex but sex did not enter into any interactions that approached reliability. There was no main effect of smoking but the Smoking \times Communication interaction yielded an F of 20.2, significant beyond the .001 level. Further overall analyses were carried out in which sex, smoking, experiment, prayer, and church attendance were the factors, and response to Christianity is Evil was the dependent datum. In these analyses sex and smoking did not enter into interactions that approached reliability. These results weighed against the possible confoundings discussed above.

A final overall analysis of variance (least-squares solution) was carried out with a matched selection of 96 subjects. There were 16 female smokers, and 16 male smokers were selected from the pool of 23 male smokers so that daily cigarette consumption for the male and female groups was approximately matched. A random drawing of 32 males and 32 females from the nonsmokers completed the selection. Smokers pressed the button more than nonsmokers to hear Smoking Does not Lead to Lung Cancer and less to hear Smoking Leads to Lung Cancer. The interaction was highly reliable as shown in Table 4. Table 4 also shows a reliable main effect of sex but, again, no interactions. Thus, support for the dissonance hypothesis was obtained with sex effectively partitioned out.

GENERAL DISCUSSION

The present series of four experiments repeatedly yielded relationships between behavioral commitment and behavioral self-ex-

TABLE 4

SUMMARY OF ANALYSIS OF VARIANCE OF BUTTON-PRESS RESPONSES TO SMOKING LEADS TO LUNG CANCER (CANCER LINK) AND SMOKING DOES NOT LEAD TO LUNG CANCER (NO LINK) BY LISTENERS CLASSIFIED ACCORDING TO SEX AND SMOKING ACTIVITY: 96 SUBJECTS SELECTED^a FROM ALL FOUR EXPERIMENTS

	<i>df</i>	<i>MS</i>	<i>F</i>
Between			
Smokers versus non-smokers (A)	1	11.51	<1
Males versus females (B)	1	807.41	16.28**
A \times B	1	.36	<1
Error	92	49.59	
Within			
Cancer link versus no link (C)	1	48.51	5.98*
A \times C	1	334.61	41.21**
B \times C	1	.81	<1
A \times B \times C	1	9.63	1.19
Error	92	8.12	

^a See explanation in text.

* $p < .05$.

** $p < .001$.

posure to pertinent propaganda. Smokers were more likely than nonsmokers to attempt removal of static from a message disputing the link between smoking and lung cancer; smokers were less likely than nonsmokers to attempt to clarify a message affirming a smoking-cancer link. The greater the amount of cigarettes smoked, the stronger these relationships appeared to be. In each of the four experiments smokers were more receptive to supportive information (denial of the smoking-cancer link) than to nonsupportive information (affirmation of the smoking-cancer link). In another area, religious behavior, persons strongly committed to religion, as evidenced by their greater recourse to prayer and church attendance, were less eager to clarify a message attacking Christianity than were persons weakly committed to religion. These principal findings were considered solidly replicable; they did not seem explainable by mechanisms other than dissonance avoidance. Straightforward derivations from a relevance position were unconfirmed; the role of novelty in producing the obtained pattern of receptivity scores could be empirically discounted, as discussed below; and three attempts to affect receptivity by varying information utility failed. In the present paradigm, therefore, the bulk of the variance seemed accountable for in terms of individual differences in response rate and message attributes such as boringness, intelligibility, and consonance.

The dependent variable, message-clarifying button pressing, was considered a valid measure of information receptivity. A question may be raised, however, from consideration of the failure to support the utility hypothesis. Perhaps attention to button pressing interfered with attention to the messages. One consequence of this "competing response" interpretation is that button pressing should be lower for the emphasized speech topic and higher for the nonemphasized topic. The previously described results, however, did not provide any consistent support for a "competing response" view. Merely *clear* discourse, in the case of the Tamil message, was insufficient to produce elevated responding relative to the other messages, and merely *intelligible* discourse, the Educational Films communication,

did not elicit increased responding. Button pressing apparently increased when the message was both meaningful and supportive.

The findings may be contrasted with previous failures systematically to confirm the dissonance-avoidance hypothesis (Freedman & Sears, 1965). Comparison of the present experiments with an earlier one by Brock (1965) is instructive because Brock used the same subject population and message stimuli. His subjects indicated their reading preferences among magazine articles. The dependent measure was a preference ranking for the titles "Smoking Leads to Lung Cancer" or "Smoking Does not Lead to Lung Cancer." These topics, of course, were the same ones used in the present series. In the earlier experiment (Brock, 1965), smokers did not differ reliably from nonsmokers in their preference for the message linking smoking to lung cancer, that is, there was no evidence for avoidance of nonsupportive information. The noteworthy difference between the current series and Brock (1965) is that subjects in the earlier study were evaluating information prospectively while here, confrontation by the discrepant information was already underway. The implication is that present, past, and future time contexts should be distinguished in subsequent work on information receptivity. Perhaps selective exposure, attending to the message at all versus not at all, must be distinguished from selective *attention*, exposure to the message with attention only to parts. When the subject is actually exposed to information, dissonance avoidance may be readily demonstrable (present series; Cohen, Brehm, & Latané, 1959; Festinger, 1957, pp. 162-176; Jecker, 1964, pp. 76-77).⁶

⁶ Studies failing to show avoidance of concurrently presented dissonant material seem to be ones in which the prior commitment or decision was clearly uninvolved and/or in which the dependent measure was somewhat unrefined. For example, Sears and Freedman (1965) employed a mock-jury situation; their experimenter ran four to five subjects at a time and the dependent measure was the time intervening between the experimenter's departure from the subject's cubicle and the subject's signal that he had finished reading the material left with him by the experimenter. Some Sears-Freedman subjects could have daydreamed and read little before signalling the experimenter while others could

For the case of retrospective information receptivity, wherein the subject is considering previous acquired information, avoidance of dissonant information has been sufficiently documented (see references in Brock, 1965, p. 16; Jecker, 1964, pp. 78-80). Difficulty in confirming the dissonance-avoidance hypothesis seems restricted to the case in which the subject is given a modicum of information, for example a title, regarding messages to which he might be exposed *in the future*. It is for this case only that dissonance theory appears inadequate; additional processes have to be postulated. The reformulation offered by Brock (1965, pp. 17-18) is the only one so far available that encompasses both positive and negative evidence and also allows for the derivation of other models as special cases. The core of Brock's (1965) statement was:

(a) persons will expose themselves to cognition dissonant with their choice (of behavior, opinion, object, etc.) in direct proportion to the number and importance of prior cognitions consonant with the choice; (b) the gratification of dissonance reduction is proportional to the magnitude of dissonance arousal; (c) when dissonant cognition is not avoided, receptivity to it will be proportional to the magnitude of the anticipated discrepancy [p. 17].

These propositions are general; they permit the derivation of specific determinants of receptivity as particular instances. For example, Freedman (1965), Festinger (as cited by Freedman & Sears, 1965, p. 76) and Canon (1964) have speculated about the role of opinion confidence in determining self-exposure to nonsupportive information; Mills (1965b) similarly employed certainty (that a choice is correct) as the principal determinant of receptivity to dissonant information. Opinion confidence and choice certainty are particular kinds of consonant preexposure cognitions; according to Brock's (1965) proposition *a*, as such cognitions increase in number and salience, exposure to dissonant cognitions will increase. Proposition *a* not only handles well the confidence (Freedman, 1965) and cer-

tainty (Mills, 1965b) views, but it may be the most parsimonious account of the effect of one-sided versus two-sided presentations upon subsequent information selectivity in adversary situations (Sears, 1965). Sears' conclusion can be considered a paraphrase of proposition *a*:

the available evidence supports the notion that preferences for counter-information follow when a person has had a one-sided past history of exposure to information on an issue; i.e., when considerably more of the information he has seen favors one side than the other. This seems to hold even when the one-sidedness is due to biased information content rather than to differential exposure to spokesmen for each side [Sears, 1965, p. 373].

During approximately the same period in which selective exposure has come to pre-occupy social psychologists, there has been a far more rapid growth in a seemingly relevant experimental area, the study of curiosity and exploration (Berlyne, 1966; Fowler, 1965). In these studies the stimuli have usually been visual patterns or varieties of stimulus change and the respondents have been diverse—chicks, rats, neonates, and college sophomores. However, messages of the kind that affect attitudes and influence personal decisions and interpersonal behavior have never been employed as effective stimuli by the investigators of exploratory behavior. The many other interesting contrasts and parallels between the selective-exposure and exploratory-behavior literatures cannot be dealt with here. Two observations are worth conveying, however. First, comparison of the literatures, especially including the present results, illumines the distinction between dissonance on the one hand, and incongruity, complexity, irregularity, or heterogeneity on the other. The latter seem to elicit increased responding, whereas it has been shown here that confrontation by a dissonant stimulus depresses responding which would clarify the stimulus. Dissonance results for the individual from the violation of what is psychologically implied by his prior commitment or decision, whereas incongruity, complexity, magnitude of stimulus change, and the like, can be defined without reference to a particular recipient organism. The fact that concurrent dissonance depresses stimulus-clarifying responses while

have read and reread the material many times. The two types of behavior could misleadingly yield identical time scores. This kind of artifact was recognized and removed by Jecker (1964) in the analysis of his previously cited supportive results.

incongruity and moderate stimulus change increase stimulus-clarifying responses compellingly establishes the distinction.

The second observation concerns novelty and receptivity. The present experiments suggested that novel stimulation does not necessarily increase stimulus-clarifying responding. Some analysis of the novelty-receptivity hypothesis was presented earlier; it may be further noted that the Tamil message was certainly novel (also "irregular" and "complex"), but receptivity to India Should be Neutral was depressed compared to receptivity to the other messages. A novelty or stimulus change formulation might have predicted increased receptivity to Educational Films because each recited film title was new and different from the previous title; redundancy was much lower than in the communications on smoking, religion, and college draft. It seemed the present paradigm did not evoke the kinds of processes highlighted by the epistemic behavior theorists. Hence, the possibility can be entertained that the generalizations developed by these theorists do not apply to lifelike situations wherein individuals encounter and selectively expose themselves to propagandistic messages. The present static removal technology could facilitate direct tests pitting dissonance avoidance against a boredom drive (Fowler, 1965) or a curiosity motive (Berlyne, 1966).

There have been too few attempts to cast social-psychological issues in the explicit language of S-R theory (e.g., Weiss, Rawson, & Pasamanick, 1963). Integration of a social psychology theory with behavioral theory requires recognition of interrelationships between the theories and *the adoption of common dependent variables*, a common response.

The classical theories of Hull and Spence define the response in molar terms like pressing a bar, running down an alley, etc., and the quantitative characteristics of a response are predicted from a single terminal construct, excitatory potential. Independent variables such as practice, drive, reward, etc., converge upon excitatory potential and this single number [magnitude of excitatory potential] is used to determine whether the response will occur, how quickly it will occur, and what its amplitude will be [Logan, 1959, p. 297].

The present experiments encourage the use of a specific molar response, static-removing

button pressing, in situations for which testable hypotheses can be derived from both behavioral and social-psychological theories. One interesting next step may be the attempt to coordinate and/or contrast S-R and dissonance theories by determining the consequences of the intertranslation of key concepts. This task can be adumbrated here by illustrations from the kind of conceptual exercise that may yield new laws and specification of the limits to extant generalizations. The constructions immediately following depend upon several unstated assumptions, such as that supportive information is rewarding.

Excitatory potential may be read as receptivity, measured by message-clarifying button pressing. There is already good justification (Brock, 1963, p. 329) for the intersubstitutability of dissonance and drive. "Incentive" may be thought of as the magnitude of consonance conveyed in the stimulus message. The greater the drive or dissonance (heavier commitment to discrepant behavior, e.g., smoking; increased personal importance of a prior decision) and the greater the incentive or consonance (messages can be written and scaled to vary in supportiveness for a prior commitment or choice), the greater will be the excitatory potential or rate of message clarification. Interesting empirical questions emerge. Which combinatorial rule for drive and incentive, addition or multiplication, is applicable to an individual selectively attuned to meaningful messages? Is the Hull-Spence approach limited to nonlanguage situations (Logan, 1959, p. 302)? Can the derivation of dissonance avoidance and other selectivity phenomena be pursued within a Hullian-type framework? The experimental paradigm and dependent variable introduced in this report now make such questions answerable.

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