

## Speed of Speech and Persuasion

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The relationship between speaking rate and attitude change was investigated in two field experiments. Manipulations of speech rate were crossed with (a) credibility of the speaker and (b) complexity of the spoken message. The results suggest that speech rate functions as a general cue that augments credibility; rapid speech enhances persuasion. No support was obtained for information-processing interpretations of the effects of a fast speaking rate. The increased persuasion produced by fast speech could not be attributed to disruption of effective counterarguing. These findings emphasize the importance of perceptual and evaluative factors in the persuasion process at the expense of a more rationalistic information-processing view of how man responds when confronted with an influence attempt.

Although many of the persuasive communications received during daily life are orally presented, the characteristics of speech that affect persuasion are rarely studied. Moreover, studies that do examine delivery style typically treat it as a global variable. For instance, Dietrich (1946) studied the dynamism of a speaker's style, Bettinghaus (1961) assessed the effects of overall speaking effectiveness by comparing trained and uncoached students, and Bowers (1965) examined the effects of extroverted and introverted delivery using dramatic arts students to simulate style. The persuasive effects of more discrete characteristics of oral delivery, such as intensity, pitch, speed of presentation, or specific emotional qualities apparently more rarely elicit attention.

Several considerations suggest that speech rate might be an important variable. Texts on speech (Allen, Anderson, & Hough, 1968; Monroe & Ehninger, 1974) have reported considerable individual variation in speaking rate with 120-180 words per minute as the lower and upper limits of normal speech.<sup>1</sup> It is a short step to imagine theoretical implica-

tions of such variation that might contribute to differences in persuasion. Yet, even though Foulke and Sticht (1969) have most recently studied the effects of speed of presentation on comprehension, its effects on persuasion remain unexplored.

McGuire (1969) characterized attitude change as a stochastic process that flows from attention through comprehension, yielding, retention, and action. Although rate of speaking might theoretically be expected to influence any of these processes, it initially seems plausible to focus on how it affects comprehension. In their review, Foulke and Sticht (1969) showed that when significant results are found, most are in the direction of lowered comprehension when speed of speech is rapid.<sup>2</sup>

If a fast speaking rate does reduce comprehension, then it should also curtail persuasive power (Eagly, 1974). However, since the results of most studies in the comprehension literature are not significant, it may make more sense to look for the effects of speed in some other stage of the persuasive process, such as yielding. To focus away from comprehension seems particularly sensible, in

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<sup>1</sup> For example, radio announcers are often noted for their rapid speech rate. Lumley (1933) determined the average speech rate of 25 radio speakers to be 162 words per minute, with a standard deviation of 19.40 words per minute.

<sup>2</sup> It should be pointed out that a majority of the studies have found no significant effects.

that the high speeds used in the prior research equaled or exceeded the upper limits of the range of normal speech. Consequently, one might reasonably assume that the speed manipulations in these studies were sufficiently powerful to have shown an effect if one does indeed exist.

How might speed affect the yielding phase of persuasion? A fast speaking rate might disrupt any covert attempt to counterargue against the persuasive content of the message, thereby increasing persuasion. Whereas any effects of speed on comprehension or counterargument disruption can be conceptualized as message factors—characteristics of the message that affect persuasion—speaking rate may alternatively act as a source factor. That is, it might provide cues for viewing a fast speaker as more knowledgeable, competent, and facile. In this case a rapid speaking rate constitutes a credibility cue and on this basis should likewise enhance persuasion.

Although the comprehension interpretation of speaking rate does make a distinct prediction—less attitude change when speech is rapid—both the counterargument disruption and enhanced credibility interpretation make the opposite prediction—greater attitude change with a rapid speaking rate. How can these two hypotheses be separated? First, with respect to the counterargument disruption hypothesis, if rapid speech does indeed disrupt covert counterarguing, then, as implied by Kiesler and Mathog (1968), the impact of speaking rate should vary with the credibility of the speaker. According to their argument, when the message is counterattitudinal and the speaker possesses substantial credibility, counterarguing tends to become the most viable mode of resisting influence. This should be particularly true if one is highly involved in the issue (Osterhouse & Brock, 1970). However, counterarguing is ordinarily an elaborate internal response, one requiring time and mental energy. A communication spoken rapidly should reduce the available time and increase the difficulty of making such covert responses. Consequently, increased speed should facilitate attitude change. On the other hand, a person listening to a speaker who lacks credibility can resist influence by using a less elaborate internal

response; he can simply reject or discount what is said. Under these conditions, speaking rate should not substantially attenuate ability to resist, and consequently, should have little impact on persuasion. Although there are few direct tests of the role of counterarguing in the persuasion process (Miller & Baron, 1973), the reasoning above does make a clear prediction. It suggests that if fast speech does disrupt counterarguing, there should be an interaction between speaking rate and credibility. Alternatively, if speaking rate simply functions as a credibility cue, no interaction would be predicted. Instead, as previously suggested, fast speech should enhance persuasion regardless of the speaker's credibility.

The results of two studies that begin to delineate the relation between speed of speech and persuasion (Beaber & Miller, Note 1) suggest that speech rate functions as a cue for increased credibility. The first experiment of Beaber and Miller investigated rate of speaking and credibility of the source in a  $2 \times 2$  design. In addition to finding the credibility manipulation to be successful (the high-credibility source was seen as more knowledgeable and more trustworthy), the fast speaker was perceived as more knowledgeable and more trustworthy. In addition, the communication was perceived as more complex but also clearer and easier to understand when presented by a fast speaker. These findings suggest that a rapid speaker is perceived as more competent, since it takes a skilled speaker to present complex material clearly. However, since credibility was manipulated by varying both ability and trustworthiness in this first study, the specific component of credibility that speed enhanced cannot clearly be specified. Certainly, there are situations in which high ability and trustworthiness do not necessarily occur together. The most obvious example is a used car dealer who, despite his expertise, is not always viewed as trustworthy and may be seen as even less believable if he speaks very rapidly.

Therefore, in a second experiment Beaber and Miller manipulated trustworthiness independently from expertise to investigate whether or not the persuasiveness of an untrustworthy communicator would be enhanced by rapid speech. In the first study, any effects

of trustworthiness could have been obscured by the difference in expertise of the communicator. Whereas in the first experiment the communication advocated "offshore drilling for oil," in the second experiment it argued that "The Mazda is the best car value around." The communicator was depicted as a used Mazda salesman with something to gain from his persuasiveness (low trust) or as a former Mazda salesman who currently worked in a bank (high trust). Thus, expertise was held constant. This manipulation seemed most likely to produce an interaction between speed and credibility and thereby test the generality of speed as a cue for enhanced credibility. In this instance, an untrustworthy fast speaker should appear to be less believable than an untrustworthy slow speaker; contrarily, a trustworthy fast speaker should be more believable than a trustworthy slow speaker, replicating the outcome of the first study.

Manipulation checks showed that the trustworthy speaker was in fact rated as more trustworthy and, furthermore, that the manipulation was independent of expertise, since the high- and low-trust speakers were rated as equally knowledgeable. As in the first experiment, rapid speech enhanced ratings of both trust *and* knowledge. Further paralleling the first experiment, measures of persuasion also showed the rapid speaker to be more persuasive.

In summary, then, these two experiments strongly argue that speaking rate operates as a very general and powerful credibility cue. The results clearly contradict information-processing hypotheses concerning rate of speech. If fast speech had impaired comprehension, it should have likewise reduced rather than augmented persuasion. Alternatively, as argued in the first experiment, if fast speech had interfered with covert counterarguing, it should have more strongly facilitated persuasion when credibility or trustworthiness was high than when it was low.

If, despite the data of these two experiments, one is intent on saving the comprehension or counterargument disruption hypotheses, one might argue that the proper tests have not been performed. Since both of these experiments were laboratory studies,

subjects might have construed the situation as a test. Consequently, the predicted interaction between credibility and speech rate might have failed to receive support because the situation demanded extremely high attention regardless of the level of the speaker's credibility. Thinking that they might subsequently be tested on some aspect of their retention or comprehension, subjects might have focused more on the content of the arguments regardless of the level of credibility assigned to the speaker. According to this view, whereas faster speech might indeed produce some minor enhancement of credibility, its more important, potent, pervasive, and normal consequences are those affecting information processing, whether decreasing comprehension or alternatively disrupting one's ability to counterargue. Yet, in laboratory experiments, these effects cannot be observed; attention and vigilance to content is made so asymptotically high by the implicit demands of the laboratory that the normally weaker and less important credibility enhancement effects remain as the only ones to be observed.

In terms of these arguments, a field setting might provide a more adequate test of the information-processing interpretations of speaking rate. Since the public accepts on-the-street interviewing with little suspicious questioning, test expectancies might not operate when a field experiment is concealed behind this type of facade.

#### EXPERIMENT 1

Experiment 1 manipulated speech rate and speaker credibility in a field setting to determine their effect on attitude change and perceptions of the speaker. Since in the Beaber and Miller (Note 1) experiments the trustworthiness dimension of credibility did not interact with speech rate but rather functioned as a cue that unidirectionally enhanced credibility, no attempt was made to manipulate orthogonally the competence and trustworthiness dimensions of credibility.

#### *Method*

*Subjects and experimenters.* Subjects were 359 persons living in the Los Angeles area. They were individually approached in a public area by 1 of 14 experimenters, each of whom conducted multiple repli-

cations of the design.<sup>3</sup> Experimenters were male and female undergraduates enrolled in an upper-division psychology class at the University of Southern California.

*Procedure.* Each experimenter assigned a subject to each cell before starting the next replication. The order of cells was determined by random assignment but was constant across replications and experimenters. All subjects were individually run. They were approached in a variety of public settings, such as parks, various on-the-street locations, other campuses, shopping malls, and door-to-door in various neighborhoods.

The experimenter approached the prospective subject and introduced himself (herself) as an interviewer from radio station KSC for the program *People's Forum*, which was described as being concerned with topics of interest to the listening audience. Subjects were told that tapes had been made containing listeners' opinions on various topics. The interviewer asked the subject to listen to a tape on the current day's topic ("The danger of drinking coffee") and then to give his reaction to it. If the subject agreed, the interview was continued by describing the author of the tape and playing it for the subject.

*Persuasive communication.* The communication was approximately 400 words in length. It argued that coffee is a hazardous drug; caffeine in large doses is a poison and can cause damage to and fluttering of the heart, headaches, migraines, cold hands, and stomach ulcers; by decreasing appetite and by leading to insufficient sleep, coffee lowers resistance to disease; by providing momentary energy, it hides symptoms of other medical problems; it adversely affects teeth and gums; it is addicting and causes withdrawal symptoms; and in conclusion, like cigarettes, it should be classified by the government as hazardous.

*Credibility.* In the low-credibility condition the speaker was introduced as a locksmith, whereas in the high-credibility condition he was introduced as a biochemist. To augment the credibility manipulation, errors in pronunciation, grammar, and word usage were inserted into the speech of the low-credibility speaker, while retaining the same content and meaning. After describing the speaker, the experimenter played either a fast or slow version of the recorded message and then asked the subject to answer a few questions.

*Speaking rate.* The speaker used in this experiment spoke at approximately the same rates as did the one in the Beaber and Miller (Note 1) experiments. The speaking rate in the low-speed condition averaged 102 words per minute, whereas in the high-speed condition it averaged 195 words per minute.<sup>4</sup> These rates were achieved by simply instructing the speaker to practice delivering the speech as rapidly and slowly as possible while controlling his level of enthusiasm and involvement. Tapes were made on studio-quality equipment. Overall volume was balanced across tapes by matching average volumes on five sample segments of each tape. Cassette record-

ings were reproduced from the master tapes and delivered via cassette recorders.

*Dependent measures.* After listening to the tape, subjects were asked to indicate orally their agreement with a series of statements. Agreement was indicated on 10-point Likert scales (midpoint = 5.5), with higher numbers indicating stronger agreement. The statements concerned global agreement with the main contention of the communication, perceived speaker characteristics (knowledgeability), perceived clarity of the presentation, and the personal coffee-drinking habits of the subject.

## Results

Inspection of the credibility manipulation check indicated that the high-credibility source was perceived as more knowledgeable:  $M_s = 7.93$  and  $5.19$  in the high- and low-credibility conditions, respectively;  $F(1, 13) = 89.1$ ,  $p < .001$ . This effect was determined by testing the main effect against the Experimenter  $\times$  Condition interaction, since this interaction was significant.<sup>5</sup> This most conservative test (using the significant interaction term) also revealed a significant effect of credibility on perceived understanding:  $M_s = 8.71$  and  $8.07$  in the high- and low-credibility conditions, respectively;  $F(1, 13) = 7.8$ ,  $p < .05$ . The effect of speech rate on knowledgeability approached standard levels of significance:  $M_s = 6.93$  and  $6.12$  in the fast-

<sup>3</sup> The authors wish to express their sincere appreciation to Susan Anderson, Evie Baker, Laurie Brand, Pat Brotman, Gayle Caviglia, David George, Medrith Hose, Judi Kammerman, David Mace, Steve Mayer, David Quezada, Alan Seims, Francis Troll, and Jan VanSchaik for their able assistance in the collection of the data.

<sup>4</sup> The high-credibility-slow-speech rate was 99.6, the high-credibility-fast-speech rate was 194.4, the low-credibility-slow-speech rate was 104.8, and the low-credibility-fast-speech rate was 195.8 (words per minute). For the two Beaber and Miller (Note 1) studies, a rate of about 110 words per minute was used in the slow-speech conditions, while a rate of about 190 words per minute was used in the fast-speech conditions. Despite the similarity of speech rates, the different communicator used in the present study should increase the generalizability of the results.

<sup>5</sup> Different experimenters produced different magnitudes of effect with the credibility manipulation. Therefore, each effect was tested against its interaction with experimenters. In effect, then, we are using a mixed model with experimenters as a random factor, testing each fixed effect against its interaction with experimenters.

and slow-speed conditions, respectively;  $F(1, 13) = 4.4$ ,  $p < .06$ , again, by the more conservative test. Thus the high-speed speaker tended to appear more knowledgeable.

An analysis of variance on the postcommunication agreement measure (using number of cups of coffee drunk daily as a covariate) yielded main effects that approached significance when tested with the conservative experimenter interaction error term:  $M_s = 6.13$  and  $5.44$  in the high- and low-speed conditions, respectively;  $F(1, 13) = 2.80$ ,  $p < .13$ ;  $M_s = 6.28$  and  $5.33$  in the high- and low-credibility conditions, respectively;  $F(1, 13) = 4.41$ ,  $p < .06$ . Thus the high-speed communication was more persuasive than the low-speed communication.<sup>6</sup> The fact that the experimenters used in this study lacked much experience (which probably accounts in large part for the Experimenter  $\times$  Condition interactions) might well have reduced the strength of the effect of speech rate. Further, some researchers have argued that effects in the field are typically weaker than those in the laboratory (Hovland, 1959). In addition, examination of the tapes revealed an instance of a glaring nonfluency (repeated stuttering over one word) in the high-credibility-high-speed speech. As shown by Miller and Hewgill (1964), nonfluencies typically lower perceived credibility. Consequently, this should have further reduced the effect of the speed manipulation. Despite these difficulties, it should be noted that the data did not support either the comprehension prediction—less persuasion under high speed—or the counterargument prediction—a Speaking Rate  $\times$  Credibility interaction showing a speed effect under high-credibility conditions but no speed effect in low-credibility conditions.<sup>7</sup> Instead, they support the view that rapid speech serves as a credibility cue and thereby enhances persuasion.

## EXPERIMENT 2

Although the credibility hypothesis continued to receive general support from Experiment 1, there may still be special circumstances in which speech rate functions to disrupt counterarguing. The communications used in both Beaber and Miller (Note 1)

studies and in Experiment 1 did not provide especially novel arguments to the listener, nor did they deal with particularly unfamiliar topics. In persuasion paradigms that offer novel arguments or topics, adequate processing of message content should become more salient. From this standpoint, it can be argued that for the topics used in the reported studies, subjects had counterarguments readily available and therefore did not experience the high rate of presentation as being disruptive. Elaborate processing of the message was not necessary. A more sensitive test of the counterargument disruption hypothesis might require novel communications for which simple retrieval of stock counterargu-

<sup>6</sup> All effects are highly significant ( $p < .01$ ) when the standard, and less conservative, within-cell variance is used as the error estimate. However, to revert to this more typical error estimate means that these results cannot be generalized beyond the particular set of experimenters used to collect these data. This is of course normally true for virtually all experiments reported in psychological journals, in that few researchers test their effects against the variability of different experimenters' outcomes. Most use only a single experimenter. If the results were significant using the more conservative error estimate (the interaction with experimenters), their external validity would be enhanced in that they presumably would obtain with any of the experimenters from the larger population of which these 14 constitute a random sample.

<sup>7</sup> In attempting to defend the counterargument explanation, some might argue that people primarily use covert counterarguing to resist persuasion when they are involved with or have a personal concern about the topic. While we have not explicitly manipulated involvement, we can indirectly explore this notion by attending to an individual difference measure of the extent to which our subjects were likely to be concerned with the topic. It is reasonable to assume that subjects who report being heavy coffee drinkers are likely to be more concerned and involved with a speech emphasizing the dangers of drinking coffee. The results of the analysis of covariance argue against the view that covert counterarguing is used to resist persuasion primarily when one is concerned with the issue. The persuasion effects are found even though personal involvement (number of cups of coffee drunk per day) was covaried out. If speech rate affects persuasion by interfering with counterarguing and if counterarguing only occurs when the topic is involving, removing the effect of involvement via covariance analysis should also eliminate any effect of speech rate on persuasion.

ments would not suffice as a means for resisting influence. Therefore, for the present experiment, a novel topic, "The dangers of hydroponically grown vegetables," was chosen to ensure that subjects would be forced to process novel arguments.

Although a more sensitive test of the counterargument hypothesis might be created by using a more novel communication topic and simply replicating one of the earlier studies that examined the Speech Rate  $\times$  Speaker Credibility interaction, a more potent criticism of the initial experiments would still remain unresolved. The predicted Speed  $\times$  Credibility interaction rested solely on the hypothesized differential salience of counterarguing as a means of belief defense in high-versus low-credibility conditions. Although Kiesler and Mathog (1968) provided experimental support for the assumption that counterarguing is the preferred mode of defense when the speaker possesses high credibility, alternate interpretations of their data are possible (Baron, Baron, & Miller, 1973). In addition, since a credibility manipulation only indirectly affects orientation toward content, it is difficult to specify the range over which content orientation is varied. Failures to produce the predicted interaction may only reflect a weak manipulation of orientation toward and away from content.

A more direct test of the counterargument hypothesis should use variables more clearly related to information processing. Theoretically, message complexity should have more pronounced effects on the difficulty of processing information. Indeed, highly complex messages may force the listener to restrict his or her covert activity and focus entirely on message comprehension. With complex communications, processing difficulties should be near their ceiling, leaving little room for speed effects. However, with simpler messages, an increased rate of speech should reduce the available time for counterargument production, thereby facilitating persuasion. In sum, there should be an interaction of speed and message complexity on attitude change.

To test the interaction predicted by an information-processing model, Experiment 2 manipulated speech rate and message complexity in a  $3 \times 2$  factorial design using a

"novel" topic. Three levels of speaking rate were employed to ensure that the effects of speech rate are not curvilinear and to extend further the generality of earlier findings.

### *Method*

*Subjects.* A total of 90 males and females, chosen from the mall of a large open-air shopping center, participated in the study.

*Procedure.* Subjects were randomly assigned to the six cells of the design before replication. The procedure and facade largely paralleled that of Experiment 1. The experimenter approached subjects individually and introduced himself as an interviewer from radio station KSC who was interviewing people on the street for the program *People's Forum*, which was again described as being concerned with topics of interest to the radio audience. Subjects were told that tapes had been made containing listeners' opinions on various topics. The interviewer asked the subject to listen to a tape on the topic of the day ("The dangers of hydroponically grown vegetables"). If the subject agreed to hear the tape, the interview was continued by describing the author of the tape and playing the tape for the subject. The speaker was ostensibly introduced as Charles Travis, a produce manager at Ralph's Ranch Market in Hollywood. The topic of the tape was chosen because it had been previously determined that few people know what the term *hydroponics* means, let alone understand the arguments favoring or opposing hydroponic growing methods. Lacking arguments, subjects are unlikely to have a defensible attitude regarding the value of hydroponics.

*Persuasive communication.* The communication was approximately 300 words in length. After defining *hydroponics*, it mentioned a number of "problems" with hydroponic methods: the need for frequent tests to ensure proper chemical concentrations in the growing medium, the small size of crops produced, the excessive cost of and trouble with equipment, algae on crops, and finally, cellular defects and genetic abnormalities of crops.

*Speaking rate.* Fast, moderate, and slow tapes were all delivered by the same person (but not the speaker used in Experiment 1). The average speech rates were 191, 140, and 111 words per minute in the fast-, moderate-, and slow-speech condition, respectively. The speaker practiced the delivery of the speech six times immediately before taping. In addition, the slow-speech version was recorded first. It was hoped that these measures would reduce differences in patterns of inflection between conditions.

*Message complexity.* The content of the two communications was the same. As described above, it argued against the use of hydroponic methods of growing vegetables. In the simple communication the ideas were expressed in simple (vs. compound) sentences with few parenthetical or qualifying clauses. In the complex communication the very same ideas were expressed in compound sentences (formed by

combining the simple sentences of the simple communication). In addition, the complex message used extended qualifying clauses, set in a sequence that would be confusing without careful attention and complete comprehension.

*Dependent measures.* After listening to the tape, subjects were asked to indicate orally their agreement with a series of attitude statements. Agreement was indicated on a 10-step scale (1-10), with higher numbers indicating greater agreement. In addition to measuring agreement with the speaker, there were questions to measure perceptions of the speaker's intelligence, knowledge, and objectivity.

### Results

Since no predictions were made regarding main effects for message complexity (i.e., it was primarily included to investigate the presence of Complexity  $\times$  Speed interactions), message complexity was analyzed by a multivariate analysis of variance across all dependent variables. This analysis indicated no differences between complexity conditions. In addition, there was no hint of a Message Complexity  $\times$  Speaking Rate interaction, as predicted by the counterargument disruption hypothesis for measures of persuasion (i.e., agreement with speaker). These data argue that speech rate does not affect counterarguing. In consonance with this interpretation, although Chaiken and Eagly (1976) found that complexity decreased persuasion, they found no relation between their complexity manipulation and counterarguing.

In the absence of a significant interaction, the focus should turn to the main effects for speed of presentation. A faster rate of speech produced more persuasion:  $F(2, 84) = 4.00$ ,  $p < .02$ ;  $M_s = 4.62, 5.95,$  and  $6.10$  for low-, moderate-, and high-speed messages, respectively. Furthermore, in consonance with Experiment 1, faster speech resulted in perceptions of greater intelligence:  $F(2, 84) = 2.31$ ,  $p < .1$ ;  $M_s = 5.70, 6.45,$  and  $6.83$ ; greater knowledge:  $F(2, 84) = 2.59$ ,  $p < .08$ ;  $M_s = 6.46, 6.80,$  and  $7.53$ ; and more objectivity:  $F(2, 84) = 4.41$ ,  $p < .01$ ;  $M_s = 3.83, 3.93,$  and  $5.76$ .

Taken together, these results provide strong support for the credibility enhancement interpretation of speaking rate. They offer no support for the counterargument hypothesis and essentially replicate the data from the first experiment and the Beaver and Miller (Note

1) studies. In addition, the linear progression of means for both the agreement measure and the speaker perception measures adds greater generality to the earlier studies and argues against curvilinear effects within the normal range of speech rates.

### GENERAL DISCUSSION

The data of these field studies support the notion that rapid speech functions as a credibility cue. In this regard, it is noteworthy that across several messages and speakers, as well as in both laboratory and field settings, rapidly spoken communications were more persuasive than those spoken slowly. Indeed, one might be inclined to assert confirmation of a new law: "Beware of the fast talker." However, it is important to point out that while these studies primarily manipulated speech rate and did attempt to control some of the obvious variables such as volume, enthusiasm, etc., that apparently naturally covary with it, in no sense can we claim that our effects are entirely or purely attributable to speed of speech. There may yet be residual factors, naturally co-occurring with rapid speech rates, that enhance persuasion. Only with computer-assisted construction of experimental materials can we hope to isolate speed per se as the critical factor. In support of our own interpretations, however, Smith, Brown, Strong, and Rencher (1975) have used computer-assisted manipulation of speech rate and have shown that greater competence is attributed to those who speak at a faster rate.

It is also interesting that fast speech within the normal range apparently does not interfere enough with reception to disrupt comprehension. While we have tended to emphasize the imperviousness of comprehension to speech rate, it is worth noting that it was not directly assessed in the present studies. Consequently, an ancillary view is that whereas speech rate may well affect comprehension (when adequately measured), comprehension in and of itself is not very important in the persuasion process.

While we have generally argued that the data oppose the counterargument disruption hypothesis, one other interpretation warrants consideration, namely, the effort justification effect, which is derived from dissonance

theory. Rapid speech may enhance persuasion by increasing the effort required to process and comprehend the speech content adequately. The enhancing effects of effort on persuasion are well documented (Osterhouse & Brock, 1970; Zimbardo, 1965; Zimbardo & Ebbesen, 1970). Baron et al. (1973) argued that such effort expenditure need not involve physical activity but might simply be a psychological or cognitive process. If so, rapid speech might produce its effect as a consequence of the increased effort required to comprehend it.

Another consideration is that the present research used paradigms in which the listener could not interact with the speaker. The impact of stylistic variables in social interaction paradigms may be quite different. High speech rate may reduce opportunities for response in a conversation by eliminating pauses. Under these circumstances, a listener may find a high speech rate frustrating and consequently might resist influence.

Finally, the effect of the manipulation of complexity in Experiment 2 warrants additional consideration. From the standpoint of traditional learning theory approaches to persuasion, the failure to find a main effect of less persuasion with a more complex message seems puzzling. Indeed, Chaiken and Eagly (1976) find empirical support for this expectation. Yet, further reflection on and comparison of their procedures with our own suggests numerous reasons for the discrepancy between findings and, further, suggests circumstances under which one might expect a highly complex message to reduce persuasion. Complexity should interfere with persuasion in circumstances where comprehension of content critically affects the persuasion process. The following are circumstances that might maximize the importance of comprehension.

1. The communication topic should disincite one to rely on expert opinion. Rather, one's opinion should rest largely on one's own values in combination with an understanding of the relevant facts. The facts should not be too technical but relatively easy for the listener to understand and should have a meaning instrumental to the appropriate implemen-

tation of one's values when forming a final opinion on the topic.

2. The communication must be lengthy. The number of facts must be sufficiently substantial, detailed, and interrelated to leave one puzzled about how one's values apply to the "proper" concluding opinion, unless one does possess a fairly complete understanding of the facts regarding the issue.

3. Finally, one's task should not simply require that one offer an opinion. Instead, stemming from one's opinion, there should be action or behavioral consequences, which if not intended for oneself, should apply to others. If there are no direct and personal decision consequences, the topic of communication should at least be one that is similar to those for which there were decision consequences in the past.

When we consider the topic used by Chaiken and Eagly (1976) and compare it with our own, our failure to find complexity effects becomes more understandable. Our topic, the danger of hydroponically grown vegetables, was novel to most respondents. It argued, largely on the basis of unfamiliar technical information, for a conclusion that the listener essentially had to accept on faith. Further, its length was brief (approximately 300 words). On the other hand, their communication, the "Victoria Company Case," was preceded by a handout that provided background information concerning a dispute between the company and its newly organized union employees over the fact that the management had failed to provide the Christmas bonus that the workers had typically received. For this preliminary information, presenting both union and company views, subjects were given approximately 5 minutes to process the information. Then they received the "case discussion" of a law student who was presumably playing the role of the lawyer brought in to arbitrate the case. This "case discussion" constituted the persuasive communication and was at least three times the length of our own persuasive appeal. Finally, it is important to note that the subjects were led to believe that they were assisting the psychology department in evaluating the ability of students at a New England law school to argue legal



cases. In other words, their expressed opinion would have action consequences for others.

The procedure used by Chaiken and Eagly (1976) to manipulate complexity largely paralleled our own. Yet, from the standpoint of our preceding arguments, it should be apparent that adequate information processing (comprehension) should play a much more central role in determining subjects' acceptance of the recommended conclusion in their case than in our own. In summary, whereas our field experiments may reflect general tendencies of persons to avoid complex cognitive effort and form judgments based upon simple decision rules (e.g., the speaker seems trustworthy vs. untrustworthy, etc.), there are other instances in which judgments are sufficiently important to ensure that necessary cognitive effort will be expended (e.g., buying a car, being on a jury). In these latter instances, there are apparently some specific situations (as described above) in which complexity does affect persuasion.

In conclusion, it is important to note that the three hypothesized consequences of a fast speaking rate explored in this research reflect two views of the persuasion process, one emphasizing rationality or the importance of detailed information processing and the other deemphasizing it. The treatment of the persuasion process by social psychologists has tended to take a rationalistic view of man (e.g., Festinger & Maccoby, 1964; Hovland, Janis, & Kelly, 1953; Jones & Gerard, 1967; McGuire, 1969). More recently, Miller (Miller, 1968; Miller & Baron, 1973) has argued that this view may require modification, with greater weight being accorded instead to emotional and evaluative cognitions—at the expense of information, content-oriented cognitions.

If the impact of speaking rate on attitude change were mediated by either comprehension effects or counterargument disruption, then a highly rationalistic view of the persuasion process would have been supported. However, the findings, which support the credibility interpretation of speaking rate, are consistent with a less rationalistic view of the persuasion process. Indeed, to put it somewhat sardonically, it may be irrational to rationally scrutinize the plethora of counterattitudinal

messages received daily. To the extent that one possesses only a limited amount of information-processing time and capacity, such scrutiny would disengage the thought processes from the exigencies of daily life.

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