

DOGMATISM, YIELDING, AND COMPREHENSION

by

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I: INTRODUCTION: DOGMATISM AND SPEECH COMMUNICATION

One legacy of World War II which has continued to stimulate concern and research in the behavioral sciences is the interest in what has come to be known as "the authoritarian personality." Seeking some explanation of anti-semitism and the behavior of dictators and millions of people seemingly willing to be governed by them, psychiatrists and psychologists in the early 1940's began to ask whether there might be a personality characteristic or group of characteristics which would predispose those millions toward intolerant, authoritarian behavior.

Beginning with the work of Fromm and the observations of Maslow during World War II, a fully developed theory of intolerance and authoritarianism and a corresponding measure of Facism emerged and culminated with the 1950 publication of The Authoritarian Personality (Adorno, et al.). The publication of Rokeach's The Open and Closed Mind in 1960 resulted in a re-thinking of authoritarianism in terms of "dogmatism" theory, a conceptualization of "generalized authoritarianism" which served to increase and extend interest in the authoritarian or "closed" personality. This interest continued unabated throughout the 1960's, producing a large body of literature from which several important questions have emerged; questions about the validity of the theoretical construct itself and about its relationship to other variables of human personality and interaction.

Although most of the research on dogmatism and authoritarianism reported in social science journals has come from the fields of psychology, sociology, and educational psychology, dogmatism theory has had significant impact on research in Speech Communication. Specifically, the dogmatism model is highly relevant to Speech Communication in that it speaks directly to the question of whether there is a personality trait which determines how an organism will receive and process new information. Dogmatism theory is an analytic tool which claims to offer explanatory and predictive insights into the effects of communication on human beings of all backgrounds, ideological persuasions, and even levels of intelligence. Wide use of the Dogmatism Scale seems to reflect an awareness that, to the extent of its validity, the theory identifies a variable which operates in every act of communication both in and out of the laboratory. The California "F" Scale and the Dogmatism "D" Scales are used widely in various research efforts where authoritarianism is thought to be a potentially significant variable.

This study will begin with a review of literature in the area of dogmatism and learning in Chapter II. Chapter III will develop the rationale for investigating the relationship between dogmatism and comprehension in learning and persuasion. This chapter will also specify hypotheses for the study and describe the procedure used to test them. Chapter IV will summarize results of the study and comment on their possible significance for an understanding of dogmatism as a personality construct.

II: REVIEW OF LITERATURE ON DOGMATISM, WITH A FOCUS ON LEARNING

It will be the initial task of this study to review literature on dogmatism focusing on literature which applies to the area of learning. "Learning" has been defined by Kenneth E. Anderson as a process of acquisition or modification of beliefs, attitudes, and values, resulting from an organism's interaction with the environment.¹ Implicit in this definition is that learning will result in the acquisition and modification of corresponding types and patterns of behavior. Accordingly, the literature to be reviewed will refer variously to absorption of new information, persuasion, and changes in beliefs and values as part of that process of altering and modifying the human organism which I shall call "learning."

In order to provide an historical and scientific perspective for the concept of dogmatism, this chapter will trace the development of the authoritarianism concept, briefly summarize basic dogmatism theory as formulated by Rokeach and his associates, and trace in some detail the research which has followed the publishing of Rokeach's basic work and which applies to the study of learning.

A. EARLY INVESTIGATIONS

Among the earliest to postulate authoritarianism as a personality attribute was Fromm.² He identified it as motivating

¹Kenneth Anderson, Introduction to Communication Theory and Practice, (Menlo Park, California: Cummings Publishing Co., 1972).

²Erich Fromm, Escape From Freedom, (New York: Farrar and Rinehart, Inc., 1941).

some forms of masochistic and sadistic behavior (i.e. irrational behavior which results in pain and suffering may be motivated by authoritarian reliance on others or authoritarian dominance over others).³ In particular, masochism was seen as evidence that an "escape mechanism" was being employed: that the individual was seeking "to get rid of the burden of freedom."⁴ Such a person is characterized by feelings of aloneness and insignificance, by willingness to "give oneself up" for the sake of another.⁵ Fromm comments: "The feature common to all authoritarian thinking is the conviction that life is determined by forces outside of man's own self, his interest, his wishes."⁶

In 1943 Maslow⁷ reported some general conclusions he had derived after extended clinical observations of persons he judged to be authoritarians. Maslow noted that his interest in authoritarianism was stimulated by Fromm, and he concurred with much of Fromm's analysis. For example, Maslow described the submissive authoritarian in terms of masochism, avoidance of responsibility for one's own fate, compulsive concern for order, and other characteristics which run parallel to Fromm's model.⁸ Reflecting

³Ibid., pp. 143-44.

⁴Ibid., p. 152.

⁵Ibid., p. 160.

⁶Ibid., p. 172.

⁷A. H. Maslow, "The Authoritarian Character Structure," Journal of Social Psychology, Bulletin of The Society for the Psychological Study of Social Issues, 18, No. 4 (November, 1943), 401-411.

⁸Ibid., pp. 408-411.

the wartime setting, however, Maslow extended his discussion beyond authoritarian submissiveness into the area of authoritarian dominance.

B. THE AUTHORITARIAN PERSONALITY

The history of the concept of authoritarianism has been written by Nevitt Sanford.⁹ Sanford credits Fromm for Fromm's work on masochism and sadism, but begins the narrative of the development of the authoritarianism concept with studies in anti-Semitism, begun in 1943 by Sanford and Levinson¹⁰ at the University of California, Berkeley.

Sanford reports that the first task was to develop a scale for measuring anti-Semitism. This was developed from interviews of authoritative persons and first published in 1944.¹¹ The work was continued with support from the Department of Scientific Research of The American Jewish Committee, and soon included names such as Max Horkheimer of the Institute of Social Research, Else Frenkel-Brunswick, Suzanne Reichard, and Horkheimer's close associate, T. W. Adorno. This research culminated in the publication of The Authoritarian Personality¹² published in 1950.

⁹R. Nevitt Sanford, "The Approach of the Authoritarian Personality," in James L. McCary, ed., Psychology of Personality, (New York: Logos Press, 1965), pp. 255-319.

¹⁰Ibid., p. 261.

¹¹D. Levinson, and N. Sanford, "A Scale for the Measurement of Anti-Semitism," Journal of Psychology, 17 (1944), pp. 339-70.

¹²T. W. Adorno, Else Frenkel-Brunswick, Daniel J. Levinson, and R. Nevitt Sanford, The Authoritarian Personality, (New York: Harper and Row, 1950).

In defending *The Authoritarian Personality*, Sanford¹³ notes that the work was carried on by the authors relatively independently in widespread geographic locations and did not represent a unified research effort. He argues that the work should not be evaluated by the same standards "which ordinarily hold for researches, in well-tilled fields, which set out to provide a crucial test of some familiar hypothesis."¹⁴ The Authoritarian Personality is described as exploratory, made possible by the availability of money and freedom for the researchers, and is based on interviews, sampling, and generalization which, in spite of an effort to maintain highest research standards, "will have to be followed up and checked by more exacting methods."¹⁵

Among the hypothetical components of authoritarianism or facism which the researchers gleaned from interviews with anti-Semitic subjects were "conventionalism" (value placed on customary mores), "authoritarian submission," "authoritarian aggression," "superstition and stereotypy," "power and toughness" (preoccupation with a strength-weakness dimension), and others.¹⁶

The Authoritarian Personality begins with a description of facism or authoritarianism as a personality characteristic which causes susceptibility to "anti-democratic propaganda." Authoritarianism is seen as causally "behind" and contributing to certain

¹³Sanford, pp. 261-262.

¹⁴Ibid., pp. 264.

¹⁵Ibid., pp. 266.

¹⁶Ibid., pp. 269-275.

behavior.¹⁷ It is viewed as both fixed and flexible; that is, it is an enduring feature of personality structure, but it represents one end of a continuum along which people may be seen as located relative to other people.¹⁸

Methodologically, the authors used questionnaires which aimed at discovering what range of responses were relevant to anti-Semitism. Interviews and Thematic Apperception Tests were used to gain insights which "would permit inferences about the deeper layers of the subject's personality."¹⁹ From these investigations was evolved the F Scale which attempts to measure facisistic tendencies of personality, the E or ethnocentrism scale (which in final form included items from the anti-semitism test), and the PEC or "politio-economic conservatism" scale.

In 1958, Christie and Cook²⁰ reported 230 published works relating to authoritarianism, the majority of which was in response to or extension of The Authoritarian Personality. They called the book "an essentially new formulation of a basic question,"²¹ to which the scholarly response had been massive. Their summary of literature on authoritarianism includes correlations of F Scale responses with "political attitudes," "social sophistication,"

¹⁷Adorno, pp. 1-2, 5.

¹⁸Ibid., p. 7.

¹⁹Ibid., p. 17.

²⁰Richard Christie, and Peggy Cook, "A Guide to Published Literature Relating to the Authoritarian Personality Through 1956," Journal of Psychology, 45, Second Half (April, 1958),

²¹Ibid., p. 171.

"child rearing," "interpersonal behavior," "minority group membership," and prejudice, as well as methodological and other considerations.²²

G. ROKEACH'S DOGMATISM THEORY

The work of Milton Rokeach builds on and extends the idea of authoritarianism. Rokeach envisioned a study of authoritarianism not only of the right, but authoritarianism conceived as a part of one's personality structure, distinct from ideological content, and thus discoverable in persons of all ranges of politics or other ideology. Rokeach says: "...we should proceed from right authoritarianism not to re-focus on left authoritarianism."²³

Rokeach's theory received its fullest exposition in The Open and Closed Mind (1960).²⁴ This book represents the most searching investigation of authoritarianism up to that time, and since its publication it has served as the foundation for most significant research in the area. Attempting much more than to refine earlier authoritarian personality theory, Rokeach has developed a personality model which, he argues, applies to and explicates a very wide range of human behavior. He begins with a discussion of "belief structures."

1. Belief Structures. Rokeach envisions dogmatism and authoritarianism²⁵ as a structural feature of personality. Rather

²²Ibid., p. 172.

²³Milton Rokeach, The Open and Closed Mind, (New York: Basic Books, Inc., 1960), p. 14.

²⁴Ibid.

²⁵Rokeach prefers "dogmatism" but "authoritarianism" is equivalent, so long as it is not used to indicate authoritarianism only of the right.

than being limited to any one belief or set of beliefs within an individual, the extent to which one is open or closed minded affects all cognitive activity.

Specifically, the Rokeach model²⁶ sees beliefs organized along a central-peripheral continuum. Central beliefs are those basic, "primitive" beliefs about the nature of one's self and the world in which he lives. In the intermediate region are located beliefs about the nature of authority, and what people represent authoritative sources of information for him. The peripheral region encompasses beliefs and disbeliefs whose assimilation is the result of their coming from positive or negative authority figures in the intermediate region.

Beliefs, according to Rokeach, are organized into "systems," a term which refers simply to groupings both of beliefs and disbeliefs. The belief system includes everything "that a person at a given time accepts as true of the world he lives in," and the disbelief system includes all that "a person at a given time rejects as false."²⁷ The disbelief system is divided into disbelief subsystems which represent groupings of disbeliefs according to some relationship among the specific beliefs included.²⁸

Rokeach takes pains to say that belief systems are not to be regarded only as religious or political or scientific systems, since any one belief could be said to fit all three of those cate-

²⁶Rokeach, The Open and Closed Mind, pp. 39 ff.

²⁷Ibid., p. 33.

²⁸Ibid., p. 35.

gories and the human mind does not make such discreet divisions. But some division of disbelief subsystems according to inter-relationships of beliefs has already been made explicit, and one sees Rokeach referring at least implicitly to belief subsystems as well. For example, when describing laboratory experiments, Rokeach describes subjects as facing the task of assimilating "a new belief system that is at odds with a previously held belief system."²⁹ Since a relatively small number of new beliefs is included in these studies, Rokeach appears to use the term "belief system" to apply to something less than everything accepted as true by the individual.

This usage occurs again in a problem-solving experiment in which subjects are said to be integrating three new beliefs into "a new system."³⁰ Even though belief systems are not only political, scientific, or religious, they evidently may be so. Rokeach at one point speaks of "...beliefs of a new system (political, religious, scientific, etc.)..."³¹ In short, a belief system for Rokeach may be any grouping of related beliefs, or may be the totality of what one accepts as true.

2. Dogmatism and Resistance to Change. At this point the contrast between open-mindedness and closed-mindedness comes into focus. To the extent that one is open-minded, or low in dogmatism, he will assimilate new information "as is," according to its own merits. When new information is received by the open-minded person,

²⁹Ibid., p. 286.

³⁰Ibid., p. 211.

³¹Ibid., p. 286.

the individual beliefs in his belief system will be re-arranged and adjusted, as necessary, in keeping with the merits of the content and implications of the new information. To the extent that one is closed-minded, on the other hand, new information will be assimilated only if it is seen as emanating from or consistent with an external positive authority source. It is accepted not on its own merits but on its relationship to authority. The result may be that the new information will be distorted to fit the existing belief system which already contains beliefs fed the individual by some accepted positive authority source.³²

In terms of the central-peripheral continuum, the highly dogmatic person is seen as follows: his central beliefs include a view of the world as threatening, his intermediate beliefs hold authority to be absolute (and evaluate other people in terms of how they relate to that authority), and his peripheral beliefs (which come to him through his authorities) are isolated from each other, a feature of his belief system which allows conflicting beliefs to be held simultaneously.³³ This closed minded approach is seen as warding off threats to the individual's cognitive structure, providing him security in a seemingly unfriendly and threatening world.

3. Dogmatism and Susceptibility to Change. One of the least understood and most overlooked areas of dogmatism theory has to do with susceptibility to change. Given new information which does not come from a highly authoritative source, the implication

³²Ibid., pp. 50 and 57, ff.

³³Ibid., pp. 54 ff.

of the theory is that the high-dogmatic subject will be more resistant to attitude or belief change than the low-dogmatic individual. But basic dogmatism theory asserts that the closed-minded person should be highly susceptible to change if the suggestion for change comes from a highly authoritative source. In such a situation the closed-minded person will be expected to change more or more easily than the open-minded subject.³⁴

This view of the dogmatic person as susceptible to change stems from the fact that such a person, relying heavily on authority, is a "party-line" thinker in that he accepts uncritically beliefs suggested by highly authoritative sources.³⁵ This susceptibility to change is made possible in part by the phenomenon of "isolation" of peripheral beliefs already mentioned above. Newly assimilated beliefs in the system of a closed-minded person are not related logically to other, already held, peripheral beliefs. Because they are accepted on the recommendation of positive authority figures, these beliefs are held uncritically, resulting in "the coexistence of logically contradictory beliefs within the belief system." This is made possible by the closed-minded person's "perception of irrelevance," his tendency to avoid contradiction by refusing to recognize logical relatedness of conflicting beliefs.³⁶

We shall see that this persuasibility of dogmatic persons

³⁴Ibid., pp. 336-337.

³⁵Ibid., p. 49.

³⁶Ibid., pp. 36-37.

as "party-line" thinkers is variously misunderstood, defended, and seriously challenged by subsequent research on dogmatism.

4. Dogmatism and Authoritarianism. There is, of course, a great deal more to Rokeach's basic conceptualization than the above. We shall encounter additional issues when we examine research relating to dogmatism and learning. However, before reviewing the literature on dogmatism since 1960, it is perhaps appropriate that we elaborate on the relationship between authoritarianism and dogmatism. Much of the literature selected for the following review deals explicitly with authoritarianism as conceptualized by Adorno, et al (1950). Let us ask whether it is proper to apply questions and findings regarding authoritarianism to Rokeach's model of open- and closed-mindedness.

As we have suggested, Rokeach believes that he is working with "generalized authoritarianism," authoritarianism which is not bound to the ideological left or right. The primary distinction he makes between his formulation of authoritarianism and those of earlier researchers is that open- and closed-mindedness is not limited to rightist, fascistic manifestations.³⁷

Rokeach argues that his conceptualization of dogmatism as embodied in the "D" and "E" scales correlates just as basic dogmatism theory would predict with authoritarianism as measured by the "F" scale. Using an opinionation scale developed by his colleagues and himself, Rokeach shows subjects with rightist leanings scoring

³⁷Ibid., pp. 11 ff.

high on both the "D" and "F" scales, and compares them to highly opinionated subjects with leftist tendencies scoring high on the "D" scale, but not on the "F" scale.³⁸

Other researchers have offered evidence to suggest that dogmatism is generalized authoritarianism. Hanson (1968)³⁹ compared scores on the "E" scale to authoritarianism as measured by the Stern "Stereopathy-Acquiescence" scales. He found significant correlations between dogmatism and authoritarianism, but found that dogmatism was not exactly equally weighted between left and right ideological tendencies. There was a non-significant, but consistent leaning to the right, a finding almost identical to Rokeach's own. These findings appear, however, to support generally the notion that dogmatism is ideologically unbounded authoritarianism.

Additional support comes from Barker,⁴⁰ who ran multiple correlations of the F scale (authoritarianism) and the E scale (dogmatism) with the TICA (Test for Tolerance-Intolerance of Cognitive Ambiguity of Siegel, 1954), the Anti-Intracception Test (Hanfman and Getzels, 1955), Attitude to Authority Scale (Mishler, 1953), tests of conservation (PEG) and political self-labelling, and the author's own Censorship-tendency measure. He concluded

³⁸Ibid., pp. 109 ff.

³⁹David J. Hanson, "Dogmatism and Authoritarianism," The Journal of Social Psychology, Vol. 76, 1968, pp. 89-95.

⁴⁰Edwin Barker, "Authoritarianism of the Political Right, Center, and Left," The Journal of Social Issues, Vol. XIX, No. 2, April, 1963.

that the E scale is indeed a measure of authoritarianism of the right and left. The study "appeared to justify using Dogmatism and Censorship as a measure of general authoritarianism." In addition, most researchers interested in dogmatism tacitly concur with the above writers, applying the findings of research using authoritarian subjects to questions related specifically to dogmatism.

In summary, Rokeach is supported by other researchers in holding dogmatism to be a generalized, non-ideological form of authoritarianism. As we shall see, this is not only one of the strengths of dogmatism theory, it is also a source of criticism of the dogmatism model. Many of the questions raised about authoritarianism may now be asked about dogmatism as well.

D. RESEARCH IN DOGMATISM AND LEARNING SINCE 1960

A perusal of the published literature since 1960 reveals several hundred studies aimed directly at an elaboration or testing of dogmatism theory, and hundreds more which utilize or account for the concept in related experiments. There is no question that Rokeach's reconceptualization of authoritarianism has stimulated research interest.

Not the least of the interest areas has been in the area of learning.⁴¹ To the extent that open- and closed-mindedness has to do with assimilation of new information, it is appropriate that learning be a prime area for testing and applying the theory.

⁴¹"Learning" is used in a broad sense which includes acceptance of and positive response to new ideas, information and suggestions for change in attitude and behavior.

What follows is a summary and assessment of literature on dogmatism and learning.

1. Literature on Dogmatism and Resistance to Change.

The first area of investigation into dogmatism and learning is typified by studies which have attempted to show negative correlations between a person's level of dogmatism and his susceptibility to change. As we have already seen, this over-simplified interpretation of Rokeach is one which he denies explicitly,⁴² but the misconception has stimulated many experiments whose results may be at least partially relevant. Several of these studies have been summarized by Ehrlich and Lee⁴³ in their review of dogmatism and learning.

Rokeach's model of dogmatism anticipates that the highly dogmatic person will assimilate new information less efficiently than the non-dogmatic person under some circumstances. Rokeach and his associates developed a problem solving task, the rather famous "Doodlebug" problem, which requires the subject to give up some prior beliefs and assimilate new ones in order to solve the problem. Low-dogmatic subjects solved this problem faster than high-dogmatic subjects.⁴⁴ Rokeach argues that two distinct processes are involved in the solution of the problem: "analysis," overcoming old beliefs which are recognized as inappropriate; and

⁴²See discussion above.

⁴³H. J. Ehrlich, and Dorothy Lee, "Dogmatism, Learning and Resistance to Change," Psychological Bulletin, 71, No. 4, (April, 1969), pp. 249-259.

⁴⁴Rokeach, The Open and Closed Mind, pp. 196 ff.

"synthesis," integrating the new beliefs (required for solution) into "a new belief system."⁴⁵ He offers evidence that open-minded and closed-minded subjects do not differ significantly in their analytic abilities, but do differ in their ability to synthesize the new information into a new belief system.

Among the earliest investigators was Ehrlich⁴⁶ (1961a and 1961b). He compared dogmatism, achievement in an undergraduate sociology course (measured by grade comparisons), and scores on a psychological inventory. Upon completion of the course, low dogmatism scores were found to be significantly correlated with high grade achievement and high scores on the psychological inventory. An attempt was made also to follow up the same students after a five year lapse. In this later study grade point averages did not correlate significantly with dogmatism, and Ehrlich suggests that course content, (including courses other than sociology) may have intervened.

Another attempt at correlating classroom performance with dogmatism scores was made by Costin.⁴⁷ He failed to find a significant relationship between dogmatism and achievement among undergraduates in psychology. Costin concluded that the dogmatism

⁴⁵Ibid., pp. 174-175.

⁴⁶H. J. Ehrlich, "Dogmatism and Learning," Journal of Abnormal and Social Psychology, 62 (1961), pp. 148-149 (a) and H. J. Ehrlich, "Dogmatism and Learning: A Five-Year Follow-Up," Psychological Reports, 9 (1961), pp. 283-286 (b).

⁴⁷F. Costin, "Dogmatism and Learning: A Follow-Up of Contradictory Findings," Journal of Educational Research, 59 (1965), pp. 186-188.

scale may measure only one kind of dogmatism (i.e., that which is relevant only to "controversial social relationships and public behavior" as in the Ehrlich study of achievement in sociology), and that dogmatism itself may be "differentially related" to learning in different kinds of subject matter.⁴⁸

Some studies, however, have succeeded in showing an inverse correlation between dogmatism and learning. White and Alter⁴⁹ reported testing 2,099 undergraduate psychology students over a two year period at the University of Utah, and found "statistically significant correlations between D scores and examination scores," but only from larger classes. However, the variability of correlations, even among classes taught by the same teacher was so great that the authors suggested "the predictive power of the D Scale with regard to grades is not impressive."⁵⁰

In 1968, Costin⁵¹ again studied dogmatism and classroom achievement among psychology students. He hypothesized that dogmatism would not be related to students' assimilation of basic principles of psychology, but that dogmatism would correlate positively with students' "retention of specific false beliefs about human behavior."⁵² Costin reports both hypotheses confirmed, notably the

⁴⁸Ibid., pp. 187-188.

⁴⁹B. J. White and R. D. Alter, "Dogmatism and Examination Performance," Journal of Educational Psychology, 58, (1967), pp. 285-289.

⁵⁰Ibid., p. 288.

⁵¹F. Costin, "Dogmatism and the Retention of Psychological Misconceptions," Educational and Psychological Measurement, 28 (1968), pp. 529-534.

⁵²Ibid., p. 529.

second. Closed-minded students showed "a greater resistance to changing specific false beliefs about human behavior -- beliefs which the investigator assumed were more socially controversial and emotionally laden than the conventional principles of psychology."⁵³

The Ehrlich and Lee (1969)⁵⁴ summary of research in dogmatism and learning reports some additional experiments in dogmatism and classroom achievement which, taken together, show very mixed results. Among them is a 1966 study by Rokeach and Norrell⁵⁵ which reports wide variation in the ability of the D Scale to predict academic achievement, depending on sex and academic major of subjects. Ehrlich and Lee interpret the findings to be highly suggestive of "the presence of uncontrolled intervening variables."⁵⁶

Three studies which found a relatively uncomplicated inverse relationship between dogmatism and learning are notable primarily because their subjects were not college students. Linton⁵⁷ correlated low dogmatism to achievement in grade school,

⁵³Ibid., p. 533.

⁵⁴Ehrlich and Lee, pp. 249-259.

⁵⁵Milton Rokeach, and G. Norrell, "The Nature of Analysis and Synthesis and Some Conditions in the Classroom which Facilitate or Retard These Cognitive Processes," Final Report of Cooperative Research Branch Project No. 879, 1966, Michigan State University.

⁵⁶Ehrlich and Lee, p. 251.

⁵⁷Thomas E. Linton, "Dogmatism, Authority, and Academic Achievement," Alberta Journal of Educational Research, 14 (1) (1968), pp. 49-53.

Jacoby⁵⁸ found low-dogmatic subjects more willing to accept innovative products among several types of manufactured items, and Joure, et al⁵⁹ reported greater change in self concept following sensitivity group training among low-dogmatic subjects.

The foregoing review suggests that a simple, unqualified relationship between dogmatism and resistance to change is supported neither by Rokeach nor by research in dogmatism since 1960. We shall now consider research into the area of dogmatism and susceptibility to change.

2. Literature on Dogmatism and Susceptibility to Change.

The research described above was in some sense oriented toward the expectation that dogmatism is inversely related to change. But basic dogmatism theory suggests a second, equally important area of investigation: that is the situation in which dogmatism and the likelihood or tendency to change are directly related. As we have seen, according to Rokeach's theory, new information from a highly authoritative source should produce greatest change among highly dogmatic persons.

To investigate this prediction, Rokeach and his associates redesigned the Doodlebug problem in such a way that the new beliefs required for solution did not have to be discovered by subjects, but were given to them "on a silver platter." In this experiment

⁵⁸Jacob Jacoby, "Multiple-Indicant Approach for Studying New Product Adopters," Journal for Applied Psychology, 54, No. 4 (August, 1971), pp. 384-388.

⁵⁹Sylvia A. Joure, Roland L. Frye, Barbara Meierhoeffler, and Robert N. Vidulich, "Differential Change Among Sensitivity Training Participants as a Function of Dogmatism," The Journal of Psychology, 80 (1972), pp. 151-156.

closed-minded subjects actually solved the problem faster than open-minded subjects.⁶⁰ The time difference was not statistically significant but was found consistently in replications of the experiment using different beliefs and solutions. The explanation offered is that in this silver platter mode for presenting new information closed-minded subjects do not have to remember the items since all three are presented at one time, thus their performances are enhanced. Open-minded subjects are less willing to accept new information unquestioningly, hence the "silver-platter" mode does not improve their performance.⁶¹

Incredibly, Rokeach's argument that closed-minded persons may be more subject to change or quicker to assimilate new information is taken by some researchers as contrary to dogmatism theory! Ehrlich and Lee (1969), for example, open their article by saying: "A central proposition of Rokeach's theory...is that the cognitive system of closed persons is highly resistant to change."⁶² These same authors say later that the variable of authoritative message source is an "intervening variable" which may confound the experimental effects of dogmatism!⁶³ An experimental study in which the experimenter was evidently surprised to find high-dogmatism correlated directly to persuasibility is that

⁶⁰Rokeach, The Open and Closed Mind, pp. 238-239.

⁶¹Ibid., pp. 212-213.

⁶²Ehrlich and Lee, p. 249.

⁶³Ibid., p. 255.

of Bostrom.⁶⁴ Bostrom examined students' rating of speakers and response to messages. He found that dogmatism was unrelated to ratings assigned to speakers, but that there was greater agreement with speakers' positions among dogmatic subjects. Bostrom did allude to the possibility that closed-minded subjects may be more persuasible, but concluded that such behavior was "illogical and inconsistent."⁶⁵ No mention was made of whether the speakers in the study were perceived generally as highly authoritative sources.

Yet another study, Vacchiano, et al,⁶⁶ demonstrates unfamiliarity with the idea of susceptibility to change of highly-dogmatic subjects. The authors report finding no significant correlation between dogmatism and effects of an intensive training session directed at changing subjects' attitudes about teaching. By way of explanation they suggest that the effect of the variable of authoritative source was counteracted by the presence of new information, a possibility these authors evidently do not recognize as contrary to basic dogmatism theory.

On the other hand, several studies have recognized susceptibility to change in dogmatic subjects as integral to Rokeach's

⁶⁴Robert N. Bostrom, "Dogmatism, Rigidity, and Rating Behavior," Speech Teacher, XIII, No. 4 (November, 1964), pp. 283-287.

⁶⁵Ibid., p. 287.

⁶⁶R. B. Vacchiano, D. C. Schiffman, and A. Crowell, "Attitude Change as a Function of Intensive Training, Dogmatism and Authoritarianism," Psychological Reports, 19 (1966), pp. 359-362.

model. Vidulich and Kaiman⁶⁷ studied the conformity behavior of subjects who responded to light stimuli after an experimental confederate (identified as high or low prestige source) had verbally expressed an opinion as to direction of movement of the light. The study found a significant correlation between high dogmatism, high prestige source, and conformity behavior. The authors point to a "highly important interaction...between the variables of general authoritarianism (cognitive closedness) and information source status."⁶⁸

Mertz, Miller, and Ballance⁶⁹ subjected high- and low-dogmatic subjects to messages incongruous with their beliefs but attributed to highly authoritative sources. It was predicted that attitude change toward the sources would be greater among open-minded subjects (supported), but that attitude change toward the message concept would be greater among closed-minded subjects (supported to a limited degree).

In 1968 Crano and Sigal⁷⁰ offered experimental evidence suggesting that highly dogmatic subjects assimilated discrepant

⁶⁷R. N. Vidulich, and I. P. Kaiman, "The Effects of Information Source Status and Dogmatism Upon Conformity Behavior," Journal of Abnormal and Social Psychology, 63 (1961), pp. 639-642.

⁶⁸Ibid.

⁶⁹Robert J. Mertz, Gerald R. Miller, and Lee Ballance, "Open- and Closed-Mindedness and Cognitive Conflict," Journalism Quarterly, 43, No. 3 (1966) pp. 429-433, 485.

⁷⁰William D. Crano, and Janet A. Sigal, "The Effect of Dogmatism Upon Pattern of Response to Attitudinally Discrepant Information," The Journal of Social Psychology, 75 (1968), pp. 241-247.

positions more readily than more open-minded subjects when the message source was presented as highly authoritative. They found slightly more change among low-dogmatic subjects in the direction advocated by a low prestige source. The authors interpret their findings in terms of dissonance theory, suggesting that high-dogmatic persons have a low tolerance for dissonance or perceived inconsistency.

Centers, Shomer, and Rodrigues⁷¹ asked high- and low-authoritarian subjects (as determined by a modified F Scale) to take a position on treatment of juvenile delinquents and then confronted them with information in opposition to their stated positions attributed to authoritative sources. The greater shift in stated position observed among dogmatic subjects was explained as reflecting intolerance for "uncertainty."⁷² The authors put rather neatly the rationale for authoritarian susceptibility to change, noting "the conception of the authoritarian as a person more dependant than the nonauthoritarian on external sources for defining reality and coping with its problems."⁷³

Two studies which do nothing to manipulate prestige of message source, but bear on tolerance of dissonance by highly dogmatic subjects are reported by Fillenbaum (1964)⁷⁴ and Hunt and

⁷¹Richard Centers, Robert William Shomer, and Arolodo Rodrigues, "A Field Experiment in Interpersonal Persuasion Using Authoritative Influence," Journal of Personality, Vol. 38, No. 3, (September, 1970) pp. 392-403.

⁷²Ibid., p. 398.

⁷³Ibid., p. 401.

⁷⁴S. Fillenbaum, "Dogmatism and Individual Differences in Reduction of Dissonance," Psychological Reports, 14 (1964), pp. 47-50.

Miller (1968).⁷⁵ Both studies indicate that dogmatic subjects are highly susceptible to change when they agree to prepare messages in defense of a position opposed to one they have espoused. In both cases, the dissonance model is employed to explain the results.

It is also in this area of effect of highly authoritative sources that Rokeach's dogmatism theory has had one of its most serious challenges. Recall Rokeach's rationale for "party-line" thinking. Dogmatic subjects, Rokeach asserts, are more susceptible to change when the new beliefs come from an authoritative source. His argument is that the experiment using the silver-platter mode of presentation is "analogous" to the presentation of new beliefs by a high authority figure. But he wants to say also that what the silver-platter experiment overcomes is the closed-minded person's tendency not to remember the new beliefs. Rokeach's use of memory in this explanation is speculative and (very significantly) does not rule out the possibility that a dogmatic person's memory for new beliefs might be poor regardless of the prestige of the source. In other words, if memory is a variable in the persuasibility of dogmatic persons, it may be that what Rokeach's silver-platter experiment showed was not that dogmatic subjects are highly susceptible to new beliefs from high prestige sources, but precisely that dogmatic subjects have poorer memories for new beliefs! It is this possibility that has subjected dogmatism

⁷⁵M. F. Hunt, and G. R. Miller, "Open- and Closed-Mindedness, Belief-Discrepant Communication Behavior, and Tolerance for Cognitive Inconsistency," Journal of Personality and Social Psychology, 8, (1968), pp. 35-37.

theory to one of its directest and most serious challenges. Two studies have raised the question of whether McGuire's⁷⁶ view of persuasibility may not call into question any generalized trait of authoritarianism as a significant factor in persuasion. McGuire's position is that several processes act as variables in producing general persuasibility, interacting to produce an outcome not necessarily explained by examining one process alone. He argues that at least two of these processes are at work in every persuasive situation: comprehension of the message (including attention and perception) and the willingness to yield to what is received.

Johnson, Torcivia, and Poprick⁷⁷ have suggested that McGuire's formulation conflicts with the idea that highly-authoritarian subjects are "source-oriented" or highly susceptible to change advocated by high-prestige message sources. They cite evidence that whereas authoritarianism (as measured by the F Scale) and yielding are related directly, authoritarianism and comprehension are inversely related.

Accordingly, these investigators hypothesize that the point at which the comprehension and yielding components intersect to produce maximum persuasibility will be at a relatively low or

⁷⁶William J. McGuire, "Personality and Susceptibility to Social Influence," in E. F. Borgatta and W. W. Lambert (editors) Handbook of Personality Theory and Research, (Chicago: Rand McNally, 1968), pp. 1130-1187.

⁷⁷Homer H. Johnson, James M. Torcivia, Mary Ann Poprick, "Effects of Source Credibility on the Relationship Between Authoritarianism and Attitude Change," Journal of Personality and Social Psychology, 9, No. 2, pp. 179-183.

moderate level of authoritarianism even when the message comes from a highly authoritative source. To test this hypothesis, they attributed messages opposed to frequent toothbrushing and x-ray detection of Tuberculosis to both high and low credible sources. The results showed that the level of source credibility produced little difference in net persuasive effect on highly authoritarian subjects. As predicted, low F-scorers showed greatest differential response to messages from high versus low credible sources. The authors suggest that the idea of low authoritarians relying on authority may have relevance primarily to situations in which a highly credible source is identified with pressures toward social conformity.⁷⁸

The findings of Johnson, Torcivia, and Poprick were extended subsequently by Johnson and Izzett.⁷⁹ They suggested that ease of message comprehension may have intervened in the earlier study. Noting that a difficult or ambiguous message may have masked the effect of authoritarian source-orientation, these authors compared four levels of authoritarianism (measured by the F Scale), high and low source credibility, and two levels of the yielding component indicated by plausible and implausible or unsupported messages. All messages were judged to be easily comprehensible. The results showed interaction between source credibility and authori-

⁷⁸Ibid., p. 182.

⁷⁹Homer H. Johnson, and Richard R. Izzett, "Relationship Between Authoritarianism and Attitude Change As A Function of Source Credibility and Type of Communication," Journal of Personality and Social Psychology, 13, No. 4, pp. 317-321.

tarianism to be that suggested by the McGuire model. Low authoritarians responded more to highly credible sources than high authoritarians, just as in the previous study. The authors conclude their discussion by suggesting that in studies which do show high authoritarians changing more in response to high prestige sources, difficulty of message comprehension may need to be taken into consideration.

While these experiments deal with authoritarianism as measured by the F Scale, they must be seen as questioning the view of dogmatic persons being susceptible to change when advocated by highly credible sources. I have already argued that some criticism and questions about authoritarianism are applicable to dogmatism theory as well, and in this case, the serious question of susceptibility to change appears highly relevant to both authoritarianism and dogmatism.

3. Literature on Dogmatism, Change, and "Intervening Variables."

A final area of study relating to dogmatism and learning which has interested researchers is that having to do with comparison of what Ehrlich and Lee (1969) call "intervening variables,"⁸⁰ or additional factors which may interact with dogmatism to produce a net persuasibility effect.

Among the earliest researchers interested in this area were Fillenbaum and Jackman⁸¹ who confirmed Rokeach's findings that low-

⁸⁰Ehrlich and Lee, pp. 253 ff.

⁸¹S. Fillenbaum, and A. Jackman, "Dogmatism and Anxiety in Relation to Problem Solving: An Extension of Rokeach's Results," Journal of Abnormal and Social Psychology, 63 (1961), pp. 212-214.

dogmatic subjects are more efficient problem solvers, and looked for, but found no evidence that anxiety (as measured by selected questions from the MMPI) was correlated with dogmatism or problem solving ability.

Zagona and Zurcher⁸² raise the question of whether intelligence may not be a variable which both correlates with and confounds the experimental effects of dogmatism. The authors compared high- and low-dogmatic students enrolled in a freshman psychology course, administering written intelligence and personality tests, and observing students' communication behavior, ability to deal with the essence of theoretical issues, willingness to contribute to classroom discussion.

The authors point to significant correlations of low dogmatism scores with a verbal ability test and performance on the mid-term examination. They were "struck" by differences they "detected" in student interaction and participation and "scholastic performance."⁸³ They point to correlations Rokeach found between dogmatism and the American Council on Education test of intelligence; correlations not generally at a statistically significant level, but showing, the authors believe, a trend which questions whether dogmatism and intelligence are not related.

This study is one of the first to question whether scores on dogmatism scales are actually produced largely or in part by some

⁸²S. V. Zagona and L. A. Zurcher, "The Relationship of Verbal Ability and Other Cognitive Variables to the Open-Closed Cognitive Dimension," Journal of Psychology, 60 (1965), pp. 213-219.

⁸³Ibid., p. 215.

other variable. But the authors' "conviction" that intelligence is that variable stems only partially from correlations with a test measuring "factors generally associated with intelligence." It comes primarily from their observations of student behavior in class settings; however Zagona and Zurcher offer no assurance that their expectations of the high-dogmatic section did not influence both student performance and their appraisal of it. Moreover, virtually every characteristic of student behavior cited as an example of relatively high or low intelligence (ability to relate to other students and the professor, ability to grasp the "core" of various issues, willingness to participate in discussions) can be explained in terms of dogmatism theory.

Most important in any assessment of this critique of dogmatism theory is Zagona and Zurcher's claim that Rokeach holds dogmatism and intelligence to be unrelated. Precisely the opposite is the case. Rokeach says: "It seems to us that we are (emphasis added) dealing here with intelligence, although not with the kind of intelligence measured by current intelligence tests."⁸⁴ He indicates further that dogmatism theory may suggest some new dimensions of intelligence not currently measured by tests such as the ACE.

Thus, Zagona and Zurcher's criticism, missing Rokeach's central point regarding intelligence, offers only a correlation between dogmatism and three tests, only one of which possesses any standardization or reliability data.⁸⁵ The interplay of dogmatism

⁸⁴ Rokeach, The Open and Closed Mind, p. 407.

⁸⁵ Zagona and Zurcher, pp. 215-216.

and intelligence is definitely an important subject to pursue, but it remains to be shown that the two variables are essentially different and at odds. This study suggests an "intervening" variable which might confound the experimental effects of dogmatism, but the questions it raises have already been anticipated and addressed by basic dogmatism theory.

Another possible variable intervening in studies of dogmatism may be belief-congruence. Adams and Vidulich⁸⁶ presented high- and low-dogmatic subjects with a learning task requiring the association of word pairs. Some pairs were congruent (i.e., "mom-mother"), while others were incongruent (i.e., "poor-rich"). High-dogmatic subjects had greater difficulty remembering incongruent pairs than low-dogmatic subjects. Another study which addresses the point of belief-congruence and dogmatism is that of Kleck and Wheaton.⁸⁷ They, however, found no greater preference for belief-congruent beliefs among dogmatic subjects than non-dogmatic subjects. Dogmatic subjects showed less ability to remember belief-incongruent information, but nothing was found to question or elaborate on basic dogmatism theory.

Another possible variable was suggested by Pyron and Kafer⁸⁸

⁸⁶H. E. Adams, and R. N. Vidulich, "Dogmatism and Belief Congruence in Paired-Associate Learning," Psychological Reports, 10 (1962), pp. 91-94.

⁸⁷R. E. Kleck and J. Wheaton, "Dogmatism and Responses to Opinion-Consistent and Opinion-Inconsistent Information," Journal of Personality and Social Psychology, 5 (1967), pp. 249-252.

⁸⁸B. Pyron, and J. Kafer, "Recall of Nonsense and Attitudinal Rigidity," Journal of Personality and Social Psychology, 5, (1967), pp. 463-466.

in a study which identified the element of "interest." Nonsense statements judged to be either interesting or uninteresting were submitted to subjects. Low-dogmatic subjects were found better at recalling the interesting statements. Highly dogmatic subjects remembered interesting and uninteresting statements equally well.

Whereas the above studies seem to offer limited insight into dogmatism theory, there is one additional variable which has received more attention and could prove to be important in an assessment of dogmatism and learning. For our present purposes, I shall call this variable "belief strength." This category includes both "involvement" and "centrality" of belief, treated as separate variables in the Ehrlich and Lee (1969) survey.

In Rokeach's The Open and Closed Mind (1960) the question of centrality of beliefs has to do primarily with the location of beliefs along the "central-peripheral dimension."⁸⁹ For Rokeach, centrality of beliefs is a question of whether the belief is a core belief about the nature of the world and the self, an intermediate belief about authority and the individual's relation to that authority, or a peripheral belief which flows from the central and peripheral regions and concerns specific ideas, issues, and objects in one's environment.

It is true, moreover, that Rokeach sees central beliefs as less susceptible to change than peripheral. In his book Beliefs, Attitudes and Values (1970)⁹⁰ he reports a study by Rokeach, Reyher,

⁸⁹Rokeach, The Open and Closed Mind, pp. 38-51.

⁹⁰Milton Rokeach, Beliefs, Attitudes, and Values, (San Francisco: Jossey-Bass, Inc., 1968)

and Wiseman⁹¹ which tested susceptibility to change of beliefs in five categories: (a) primitive beliefs which are axiomatically true ("unanimous concensus"), (b) primitive beliefs for which external verification is impossible ("zero concensus"), (c) authority beliefs about reference persons or reference groups, (d) beliefs "concerning matters of fact" which emanate from an authoritative source, and (e) inconsequential beliefs about questions of taste or arbitrary opinion. It should be noted that this is a refinement of the central-intermediate-peripheral dimension, with (a) and (b) representing central beliefs, (c) representing intermediate beliefs, and (d) and (e) completing the peripheral belief category.⁹² Rokeach and associates found evidence to indicate that the more centrally located the belief in this conceptualization, the less susceptible to change it would be.

But what may be most significant in this instance is what Rokeach does not claim: the study attempts to hold intensity of beliefs constant so as not to be a variable. Rokeach is specific in excluding any consideration of varying intensity of peripheral beliefs. Yet it is this intensity of beliefs that Ehrlich and Lee evidently refer to when they report research on "centrality of beliefs."⁹³ In doing so they use the term "important" as equivalent

⁹¹Milton Rokeach, J. Reyher, and R. Wiseman, "An Experimental Analysis of The Organization of Belief Systems. In Milton Rokeach, Beliefs, Attitudes, and Values, (San Francisco: Jossey-Bass, Inc., 1968), pp. 22 ff.

⁹²Ibid., pp. 6-12.

⁹³Ibid., pp. 12-13.

to "central," and summarize studies which refer to belief strength or intensity or identify centrality with personal involvement and belief congruence.⁹⁴ Thus, these authors and others who have addressed the question of "centrality" are talking about intensity of beliefs within the peripheral region. Whereas this concern may be an important one in assessing the role of dogmatism in learning, it is not the concern to which Rokeach has addressed himself.

Some studies do raise the question of belief strength or intensity in relation to dogmatism and learning. Ladd⁹⁵ studied concept learning ability of subjects in a task involving sorting cards according to shape, color, and number, an adaptation of the Wisconsin Card Sorting Test. Subjects were required to sort cards into correct categories and were told at each selection whether the choice was right or wrong. No correlation was found between dogmatism and ability to perform the task correctly. Ehrlich and Lee (1969) interpret the findings as showing that "belief-neutral and presumably non-involving materials"⁹⁶ explain the lack of difference between high- and low-dogmatic subjects. This is not claimed by Ladd himself, nor does his report of the experiment provide explicit rationale for such a conclusion.

Hypothesizing that high issue involvement and high dogmatism would produce minimal change, that low dogmatism and low involvement

⁹⁴ Ehrlich and Lee, p. 256.

⁹⁵ F. E. Ladd, "Concept Learning in Relation to Open- and Closed-Mindedness and Academic Aptitude," Psychological Reports, 20, (1967), pp. 135-142.

⁹⁶ Ehrlich and Lee, p. 252.

would produce maximal change, and that "intermediate" change would result from "the two high and low combinations of each," Miller⁹⁷ induced varying levels of involvement on the issue of fluoridation and measured change after presentation of discrepant messages. Involvement was achieved by eliciting subjects' commitment to a mail campaign in favor of their stated position on fluoridation. Subjects were "allowed" to hear tapes of "interviews" in which their position was argued against, and then were tested again as to their position on the relevant issue.

The results confirmed Miller's hypothesis, but no significant interaction of experimental effects with dogmatism: it "scarcely had an effect on attitude change."⁹⁸ Miller further points to the fact that subjects were among the upper and lower quartiles of dogmatism chosen from a population of 800, suggesting that the failure of dogmatism to produce significant effects is even more notable in this light.

E. CONCLUSION

The research which has been done in these areas does not represent a complete investigation of possible variables in the interaction of dogmatism and learning. But the questions raised by such research as that of Johnson, Torcivia and Poprick (1968) and Johnson and Izzett (1969) on the reliance of highly dogmatic subjects on authority, and Miller (1965) on the interaction of dogmatism and involvement, seem to warrant the suggestion by Ehrlich and Lee (1969)

⁹⁷N. Miller, "Involvement and Dogmatism as Inhibitors of Attitude Change," Journal of Experimental Social Psychology, 1 (1965), pp. 121-132.

⁹⁸Ibid., p. 131.

that further study of dogmatism needs to examine several possible intervening variables. They suggest authoritativeness of source, syndrome relevance (whether new beliefs are presented together or one-by-one), congruence of new beliefs, novelty of new beliefs, and "centrality" (or as we have suggested, strength or intensity) of beliefs.⁹⁹

⁹⁹Ehrlich and Lee, p. 258.

III: RATIONALE, HYPOTHESES, AND PROCEDURES FOR STUDY

A. RATIONALE

Of all the unanswered questions raised by the foregoing examination of literature on dogmatism, the challenge which seems most direct is that of the McGuire model as utilized by Johnson, Torcivia, and Poprick (1968) and Johnson and Izzett (1969). The lines are clearly drawn: Rokeach (1960) predicts that authoritarian or dogmatic people will be more likely to absorb new information from highly authoritative sources; McGuire predicts that persons of medium to low authoritarianism are more likely to remember the new beliefs or attitudes.

As we have seen, the key to resolving these contrary predictions is in the concept of "comprehension" or recall. McGuire argues that high authoritarians are not more persuasible because, even though they have a tendency to yield to high prestige sources, they are less able to comprehend the message. Rokeach, we have noted, ran a belief-synthesizing experiment in which he argued that closed-minded subjects solved the "Doodlebug" problem faster than more open-minded subjects because the new beliefs required for solution had been presented all at once, "on a silver platter." He argued that this was analogous to new information coming from a prestigious source, but said also that the key to the dogmatic subjects' quicker solution was that they remembered the beliefs better when presented all at once. I have suggested that this variable memory is the precise point at which the Rokeach model is vulnerable to modification by McGuire. The McGuire model says in effect that Rokeach is more nearly correct than

he realizes: it is precisely the dogmatic subjects' inability to remember new information that the "silver platter" mode of presentation overcomes, thus proving that dogmatic/authoritarian persons have relatively poor memories for new beliefs, not that they are likelier to yield to positive authority sources.

Let us compare the Rokeach and McGuire models succinctly. First, both incorporate "yielding" in the sense that both models assume a tendency for dogmatic persons to yield to persuasion and new information from high authority sources. Second, both recognize that memory or comprehension is a factor. But where the McGuire conceptualization sees comprehension or recall as a separate variable, Rokeach does not really want to view it as a variable. He treats it instead as analogous to the variable of source authoritativeness. The key question becomes whether memory operates as a variable independent of and in opposition to the effects of source authoritativeness. The McGuire model argues "yes;" Rokeach assumes "no."

The Johnson, Torcivia, and Poprick study, however, did not demonstrate that the less efficient memory of authoritarian subjects is, in fact, the variable which works against the dimension of "yielding." The study did show that highly authoritarian subjects who were subjected to a persuasive appeal were less persuasible and remembered less than low authoritarians. The interpretation the authors gave was that there was an inverse correlation between high authoritarianism and ability to recall or comprehend. But a key distinction which Johnson, Torcivia, and Poprick did not make, yet seem to have assumed is the distinction between ability to remember

as a separate dimension, and willingness to remember, which may be only an aspect of the dimension of yielding. In other words, the findings of the above study may show only that highly authoritarian subjects are unwilling to yield to new information, and that as part of their refusal to yield those subjects refuse to retain the new information in memory. This is to say that their less efficient recall was just an aspect of their tendency not to yield. Such an interpretation would deny that comprehension is a separate dimension, operating independently of yielding, as Johnson, Torcivia, and Poprick claim.

We still do not know, then, whether comprehension is a variable or dimension which operates, as the McGuire model suggests, independently of the yielding dimension. That is the question this study seeks to answer.

B. HYPOTHESES

This study will attempt to confirm one of the conflicting predictions of Rokeach and McGuire in regard to comprehension. Specifically:

1. The Rokeach model predicts that highly dogmatic persons will absorb new beliefs from an authoritative source more efficiently than open-minded persons. If this experiment demonstrates a positive relationship between dogmatism and comprehension, such results would indicate support for the Rokeach model.

2. The McGuire model predicts that highly dogmatic persons will absorb new beliefs from an authoritative source less efficiently than open-minded persons. A significant negative correlation in this

experiment between dogmatism scores and comprehension would argue for the McGuire conceptualization.

C. PROCEDURE

In order to support one of the above models, it seems necessary for an experimental study to do several things:

1. Present a message which:
 - a. is attributed to a highly authoritative source.
 - b. contains new information, likely to be unfamiliar to subjects.
 - c. avoids the yielding dimension as much as possible by emphasizing factual, informative content not requiring agreement or disagreement.
2. Test for comprehension (recall) of factual materials from the message.
3. Ask subjects to assess authoritativeness of the source.
4. Identify levels of dogmatism in subjects.

An experiment was designed to satisfy these criteria. A message was adapted from "Science and Fiction,"¹⁰⁰ a short article by Walter Sullivan on the development of science fiction literature. It was attributed to "Prof. Erik M. Johnson, Professor of Science and Humanities at Northwestern University, and amateur authority on Science Fiction." The message was presented to subjects as having been excerpted from a series of lectures that "Prof. Johnson" was invited to deliver on the B.B.C. in London. The message had actually

¹⁰⁰Walter Sullivan, "Science and Fiction" in The New York Times Encyclopedic Almanac, 1971, pp. 449-450.

been recorded by a radio newsman at a location distant enough from the location of the experiment that it seemed unlikely his voice would be recognized.

The message was attributed to a highly authoritative source. It appeared to contain material which was likely to be new to most subjects. And the message is almost exclusively "factual:" it does not seek responses along a "yielding" or agree-disagree dimension, but asks subjects to respond as to "comprehension" or recall. A complete text of the message used is included in Appendix "A."

The test of comprehension can be found in Appendix "B." It consisted of twenty multiple-choice questions which were designed to cover all significant factual points of the message. All alternate answers were taken from something said in the text of the message, with only one answer being the correct choice for each question. In addition to the test questionnaire, each subject was asked to rate the authoritativeness of "Prof. Johnson" by placing an "X" on a continuum from "not very authoritative" to "highly authoritative." Finally, the subjects completed the E scale, a shorter version of the Dogmatism scale (D scale) as abridged by Rokeach and his associates (see Appendix "C").

This test of message comprehension and dogmatism was introduced to subjects by the experimenter thanking the subjects for participating in the study. The experimenter then said:

"In this study we are interested in your reactions to a talk which was made by Prof. Erik M. Johnson, professor of Science and Humanities at Northwestern University and amateur expert on Science-Fiction literature. We shall listen to a recording excerpted from a lecture Dr. Johnson made on invitation of the B.B.C. in London, and then I'll ask you to complete a questionnaire indicating your responses. First, let's listen to the recording."

"Dr. Johnson's" qualifications were repeated on the tape, and the message followed.

IV: FINDINGS AND CONCLUSIONS

The dogmatism-comprehension experiment was submitted to three groups of subjects in the Spring of 1973.

Correlations were calculated between dogmatism scores and comprehension (recall), dogmatism and rating of source authoritativeness, and comprehension and authoritativeness rating of message source using the Pearson "R" formula for correlation of paired data. In addition, the standard deviation for subjects' rating of authoritativeness of the message was calculated. The following table summarizes findings:

<u>Group</u>	<u>Group Size</u>	<u>E/C</u>	<u>A.R. - S.D.</u>		<u>E/A</u>	<u>C/A</u>
A	13	-.567	75.39	16.00	+.332	+.058
B	8	-.785	67.00	19.17	+.637	-.322
C	34	-.310	74.82	14.40	+.134	-.111
Combined Groups	55	-.421	73.82	15.81	+.254	-.069

Key: E/C - Correlation between dogmatism (the "E" scale) and comprehension.

A.R. - Mean authoritativeness rating of message source.
"Highly Authoritative" = 100.

S.D. - Standard Deviation.

E/A - Correlation between dogmatism and authoritativeness rating of message source.

C/A - Correlation between comprehension and authoritativeness rating of message source.

Group "A" was composed of undergraduates at Southwestern College, Winfield, Kansas in an upperclass Economics course. The correlation between dogmatism and comprehension of $-.567$ is significant at the $.05$ level.

Group "B" consisted of employees of the Mossman Guitar Company in Winfield, Kansas. All of these subjects had completed some college study, but none had been graduated. The $-.785$ correlation between dogmatism and comprehension is significant at the $.01$ level.

Group "C" consisted of high school students attending a speech and debate camp at The University of Kansas. The $-.310$ correlation obtained between dogmatism and comprehension achieves a level of significance of $.07$.

Taken as a whole, the 55 subjects showed a correlation of $-.421$ between dogmatism and comprehension scores, a result which is significant at the $.01$ level. The mean authoritativeness rating of the message source by the combined groups was 73.82 with a Standard Deviation of 15.81 . To insure that the correlation between dogmatism and comprehension was not a result of subjects perception of authoritativeness of the message source, this latter variable was factored out, producing a partial correlation between dogmatism and comprehension of $-.416$ for the combined groups, significant at the $.01$ level.

These results seem to suggest that subjects were convinced to a fairly high degree of the source's authoritativeness, and that to a significant degree, dogmatism and comprehension were inversely related.

DISCUSSION

Whereas both Rokeach and subsequent researchers have alluded to comprehension or recall as a dimension in persuasibility and absorption of new information, the literature (as we have already seen) has not demonstrated that comprehension or recall is variable distinct from the yielding dimension and interacting with it. The previous research has mentioned or measured recall, but only in terms of its interaction with the net effect of persuasibility or learning which includes the yielding dimension. In this study I have sought to isolate the dimension of comprehension to determine whether it is in fact a distinct variable as Rokeach has hinted and as Johnson, Torcivia, and Poprick (1968), and Johnson and Izzett (1969) have asserted.

The results of this experiment seem to indicate that this dimension of recall or comprehension does operate independently of the yielding dimension, and varies with levels of dogmatism. Highly dogmatic subjects are significantly less likely to recall new information than open-minded subjects. The authoritativeness of the source to which the message was attributed was rated generally high by subjects. These findings argue against the Rokeach model's prediction that recall would be most efficient among dogmatic subjects. The results of this study agree with the prediction of the McGuire model that highly authoritarian subjects comprehend less than low authoritarians.

These results raise some serious questions about the Rokeach model of dogmatism and its ability to make predictions about human

behavior from the "personality variable" of dogmatism. To be sure, there is nothing in this study which denies that dogmatic persons resist change advocated by sources of low authority or sources perceived to be in conflict with the dogmatic person's positive authority figures. But Rokeach insists that the dogmatism concept will go further and explain "party-line thinking" and the yielding to positive authority figures of authoritarian persons. These findings are contrary to Rokeach's expectations.

The results of this study appear to argue that memory or comprehension functions not as an analogy to the variable of high prestige source, as Rokeach speculated, but as a distinct variable. The findings suggest that the effects of memory are independent of source prestige; more dogmatic subjects comprehended less of the information from a prestigious, authoritative source than open subjects. In other words, the dogmatic subjects' less efficient recall of new information was not overcome by high prestige of the source.

But what of the Rokeach problem-solving experiment? We can argue that Rokeach's experiment actually supported the McGuire model and this study. The Doodlebug experiment presented the new beliefs to the subjects all at once in written form, making it virtually impossible for subjects not to remember; the variable of recall was systematically eliminated.

A similar explanation could be offered regarding Rokeach's example of party-line thinking¹⁰¹ in which Western Communists very

¹⁰¹Rokeach, The Open and Closed Mind, p. 227.

suddenly changed their minds about the propriety of collaboration with Nazis after the 1939 Stalin-Hitler pact. He notes that their reasons for the change were vague until they received the next issue of The Party Worker which provided them with "reasons" for their sudden about-face. Again, there was no opportunity for the variable of comprehension to operate. It would have been difficult for these persons not to remember a single fact which was by then part general public knowledge and discussion. I would suggest further that this is not really a typical example of "party-line thinking" as Rokeach went on to define it. Party-line thinking is a pattern of thought in which contradictory beliefs may be held simultaneously because they are isolated in the "peripheral" belief area. And it seems to follow that they are inferentially contradictory beliefs whose inferential connection can be ignored, thus isolating them from one another and making it possible to hold to them simultaneously. Rokeach's example, however, is one where a belief was immediately replaced by its opposite: the Communists did not hold "A" and "not A" simultaneously because they were not confronted with inferentially contradictory beliefs, but with a direct denial of the belief already held. In this example neither the comprehension variable nor the party-line thinking Rokeach described was present.

To say that dogmatic persons remember or comprehend less and are thus unable to yield to information or appeals from high prestige sources does not quite eliminate the concept of party-line thinking as a valid adjunct of dogmatism theory. It allows for the possibility that dogmatic persons may "go along" when their authority figures

contradict or modify a belief already held by addressing that belief directly as we have seen in Rokeach's example. But the much broader conceptualization of party-line thinking in which dogmatic subjects are seen as more persuasible because they tend to yield to anything a high authority source suggests seems to be denied by the findings of this study.

CONCLUSION

This study has attempted to isolate the variable of comprehension or recall and to determine experimentally if this variable is (a) independent of the yielding dimension of persuasive appeals and (b) correlated negatively with increasing levels of dogmatism as suggested by McGuire and subsequent researchers. The findings argue that comprehension is independent of yielding, and that a negative correlation between comprehension and dogmatism argues for the McGuire model with its view of greater persuasibility among moderately authoritarian persons and against the Rokeach model with its view of the "party-line" persuasibility of highly dogmatic persons.

B I B L I O G R A P H Y

BIBLIOGRAPHY

- Adams, H. E., and Vidulich, R. N. "Dogmatism and Belief Congruence in Paired-Associate Learning," Psychological Reports, 10 (1962), 91-94.
- Adorno, T. W.; Else Frankel-Brunswick; Levinson, Daniel J.; Sanford, R. Nevitt. The Authoritarian Personality. New York, Harper & Row, 1950.
- Anderson, Kenneth. Introduction to Communication Theory and Practice. Menlo Park, California, Cummings Publishing Co., 1972.
- Barker, Edwin. "Authoritarianism of the Political Right, Center, and Left." The Journal of Social Issues. Vol. XIX, No. 2, April, 1963.
- Bostrom, Robert N. "Dogmatism, Rigidity, and Rating Behavior," Speech Teacher, XIII, No. 4, (November, 1964) 283-287.
- Centers, Richard; Shomer, Robert William; Rodrigues, Arolodo. "A Field Experiment In Interpersonal Persuasion Using Authoritative Influence," Journal of Personality, Vol. 38, No. 3, (September, 1970) 392-403.
- Christie, Richard, and Cook, Peggy. "A Guide to Published Literature Relating to the Authoritarian Personality Through 1956," Journal of Psychology, 45, Second Half (April, 1958).
- Costin, F. "Dogmatism and Learning: A Follow-Up of Contradictory Findings," Journal of Educational Research. 59 (1965), 186-188.
- Costin, F. "Dogmatism and the Retention of Psychological Misconceptions," Educational and Psychological Measurement, 28 (1968), 529-534.
- Crano, William D., and Sigal, Janet A. "The Effect of Dogmatism Upon Pattern of Response to Attitudinally Discrepant Information," The Journal of Social Psychology, 75 (1968), 241-247.
- Ehrlich, H. J. "Dogmatism and Learning," Journal of Abnormal and Social Psychology, 62 (1961), 148-149. (a)
- Ehrlich, H. J. "Dogmatism and Learning: A Five-Year Follow-Up," Psychological Reports, 9 (1961), 283-286. (b)

- Ehrlich, H. J., and Lee, Dorothy. "Dogmatism, Learning and Resistance to Change," Psychological Bulletin, 71, No. 4 (April, 1969), 249-259.
- Fillenbaum, S. "Dogmatism and Individual Differences in Reduction of Dissonance," Psychological Reports, 14 (1964), 47-50.
- Fillenbaum, S., and Jackman, A. "Dogmatism and Anxiety in Relation to Problem Solving: An Extension of Rokeach's Results," Journal of Abnormal and Social Psychology, 63 (1961), 212-214.
- Fromm, Erich. Escape From Freedom. New York: Farrar and Rinehart, Inc., 1941.
- Frumkin, Robert M. "Dogmatism, Social Class, and Academic Achievement in Sociology," Journal of Educational Sociology, 34, No. 9, (May, 1961), 398-403.
- Hanson, David J. "Dogmatism and Authoritarianism." The Journal of Social Psychology. Vol. 76, 1968, pp. 89-95.
- Hunt, M. F., and Miller, G. R. "Open- and Closed-Mindedness, Belief-Discrepant Communication Behavior, and Tolerance for Cognitive Inconsistency," Journal of Personality and Social Psychology, 8 (1968), 35-37.
- Jacoby, Jacob. "Multiple-Indicant Approach for Studying New Product Adopters," Journal for Applied Psychology, 54, No. 4 (August, 1971), 384-388.
- Johnson, Homer H.; Torcivia, James M., and Poprick, Mary Ann. "Effects of Source Credibility on the Relationship Between Authoritarianism and Attitude Change," Journal of Personality and Social Psychology, 9, No. 2, pp. 179-183.
- Johnson, Homer H., and Izzett, Richard R. "Relationship Between Authoritarianism and Attitude Change As A Function of Source Credibility and Type of Communication," Journal of Personality and Social Psychology, 13, No. 4, pp. 317-321.
- Joure, Sylvia A.; Frye, Roland L.; Meierhoeffer, Barbara; and Vidulich, Robert N. "Differential Change Among Sensitivity Training Participants as a Function of Dogmatism," The Journal of Psychology, 80 (1972), 151-156.
- Kleck, R. E., and Wheaton, J. "Dogmatism and Responses to Opinion-Consistent and Opinion-Inconsistent Information," Journal of Personality and Social Psychology, 5 (1967), 249-252.

- Ladd, F. E. "Concept Learning in Relation to Open- and Closed-Mindedness and Academic Aptitude," Psychological Reports, 20, (1967), 135-142.
- Levinson, D. and Sanford, N. "A Scale for the Measurement of Anti-Semitism," Journal of Psychology, 17 (1944) 339-70.
- Linton, Thomas E. "Dogmatism, Authority, and Academic Achievement," Alberta Journal of Educational Research, 14 (1) (1968), 49-53.
- Maslow, A. H. "The Authoritarian Character Structure," Journal of Social Psychology, Bulletin of The Society for the Psychological Study of Social Issues, 18, No. 4 (November, 1943), 401-411.
- McGuire, William J. "Personality and Susceptibility to Social Influence," In E. F. Borgatta and W. W. Lambert (editors) Handbook of Personality Theory and Research. Chicago: Rand McNally, 1968.
- Mertz, Robert J.; Miller, Gerald R., and Ballance, Lee. "Open- and Closed-Mindedness and Cognitive Conflict," Journalism Quarterly, 43, No. 3 (1966) 429-433, 485.
- Miller, N. "Involvement and Dogmatism as Inhibitors of Attitude Change," Journal of Experimental Social Psychology, 1, (1965), 121-132.
- Mouw, John T. "Effect of Dogmatism on Levels of Cognitive Processes," Journal of Educational Psychology, 60, No. 5, pt. 1, (1969), 365-369.
- Pyron, B., and Kafer, J. "Recall of Nonsense and Attitudinal Rigidity," Journal of Personality and Social Psychology, 5, (1967), 463-466.
- Rokeach, Milton. Beliefs Attitudes and Values. San Francisco: Jossey-Bass, Inc., 1968.
- Rokeach, Milton. The Open and Closed Mind. New York: Basic Books, Inc., 1960.
- Rokeach, Milton; Reyher, J., and Wiseman, R. "An Experimental Analysis of the Organization of Belief Systems." In Milton Rokeach: Beliefs, Attitudes and Values. San Francisco: Jossey-Bass, Inc., 1968.
- Rokeach, M., and Norrell, G. "The Nature of Analysis and Synthesis and Some Conditions in the Classroom Which Facilitate or Retard These Cognitive Processes." Final Report of Cooperative Research Branch Project No. 879, 1966, Michigan State University.

- Sanford, R. Nevitt. "The Approach of the Authoritarian Personality," In James L. McCary, ed., Psychology of Personality. New York: Logos Press, 1965.
- Sullivan, Walter. "Science and Fiction" in The New York Times Encyclopedic Almanac, 1971, pp. 449-450.
- Vacchiano, R. B.; Schiffman, D. C., and Crowell, A. "Attitude Change as a Function of Intensive Training, Dogmatism and Authoritarianism." Psychological Reports, 19 (1966), 359-362.
- Vidulich, R. N., and Kaiman, I. P. "The Effects of Information Source Status and Dogmatism Upon Conformity Behavior," Journal of Abnormal and Social Psychology, 63 (1961), 639-642.
- White, B. J., and Alter, R. D. "Dogmatism and Examination Performance," Journal of Educational Psychology, 58, (1967), 285-289.
- Zagona, S. V., and Zurcher, L. A. "The Relationship of Verbal Ability and Other Cognitive Variables to the Open-Closed Cognitive Dimension," Journal of Psychology, 60 (1965), 213-219.

A P P E N D I C E S

APPENDIX A

Experimental Message

SCIENCE FICTION AND THE PROSPECT FOR MAN

Science fiction has traditionally been an escape from reality, a dream of what might be, rather than a confrontation with what is. But with the landing of men on the Moon, the implantation of animal organs in human beings, the development of ray guns, and in countless other ways, science has overtaken science fiction. Yet as one matches the accomplishments of today with the predictions of a century or more ago, it is remarkable to what an extent the seemingly fantastic of earlier generations is the fact of today.

As Columbus prepared for his first voyage to the New World one of the earliest accounts of a Moon journey was published. It was by the satirist Lucian, who, in fact, wrote two tales of Moon journeys, one in a ship caught up by a whirlwind, the other by a man who armed himself with wings (one from a vulture and the other from an eagle). After much practice, when he was "a chicken no longer," he took off into the sky.

Another such fanciful tale was that of Cyrano de Bergerac, who told how he visited the Moon and was put on display there as a freak. These accounts, however, were essentially satires. There was little, if any, science in them. It was the scientific revolution of the seventeenth century that gave birth to true science fiction, a prime example being Francis Godwin's Man in the Moone: or A Discourse of a Voyage Thither by Domingo Gonsales, published in 1638.

According to Marjorie Hope Nicolson, an authority on such writings, this book inspired both Robinson Crusoe and Gulliver's Travels. The Godwin book's hero, an island castaway, made his escape by training wild swans on the island to lift a harness and himself. He discovered, however, that the birds hibernated on the Moon. The author described how, during the journey, the birds and their passenger gradually slipped into the sphere where lunar gravity predominates -- a phenomenon that has been experienced on every Moon journey of the Apollo astronauts.

It is, however, Jules Verne's account of a Moon journey that has been most dramatically fulfilled. Verne saw the journey as a triumph of American military technology (with a giant cannon, rather than rockets). The chosen launching site was in Florida (across the peninsula from Cape Kennedy). Trajectory calculations were by an observatory in Cambridge, Massachusetts -- home today of the Smithsonian Astrophysical Observatory, which followed the flight of Apollo spacecraft toward the Moon.

The projectile was equipped with retrorockets and these, like the SPS (or Service Propulsion System) engine of the Apollo craft, were used to boost the vehicle out of lunar orbit and back toward Earth. Like all Apollo flights to date, that of Jules Verne splashed down in the Pacific and was picked up by a U.S. naval vessel.

It is hard to believe that the wonders of the laser and of relativity could have been anticipated as early as the 1890's, but this was in part true in the works of H. G. Wells. The Time Machine tells of a man who, having fathomed the nature of time, builds a device that can look ahead (or backward) in time.

The book was written at a time when scientists were pondering the paradoxes involving such relationships as motion through space and time. Ten years later Albert Einstein resolved the difficulties with a theory of relativity that many still find as hard to believe as Wells' time machine. It proposes that if an astronaut is travelling close to the speed of light, time aboard the spacecraft will, from the viewpoint of a stationary observer, almost come to a halt, even though to the astronaut the passage of time seems normal.

Recent observations in high-energy physics, in which particles move at such high speeds, have confirmed this theory in a variety of ways, and astronauts who spend a week or so spinning around Earth come home a fraction of a second younger than they would have been had they stayed at home.

The preoccupation of H. G. Wells with such matters is also reflected in his 1899 book, Tales of Space and Time. Two years later he added to the growing list of fictitious Moon journeys with his The First Men in the Moon. However it was in his bone-chilling The War of the Worlds (1898) that he told of interplanetary travel -- a Martian invasion -- and the use of a ray gun, the beam of which was so intense that it set on fire anything in its way -- people, forests, and homes.

Somewhat similar ray guns served as weapons in the Buck Rogers and Flash Gordon comic strips, and one still sees them in television serials. Today, however, they exist in the form of laser beams.

Such a beam, in the infrared, can be invisible. It can be used surgically as a cutting tool, or across vast reaches of space to measure distances (accurate within a few inches) to a reflector left by astronauts on the Moon.

Today human kidneys have been transplanted from person to person, as well as hearts, lungs, livers, and bone marrow. In a few cases such organs have been taken from animals (chimpanzees, baboons, and pigs) for use in human beings, so far with little success, although it is hoped that the body's defenses against invasion (which reject such transplants) can eventually be controlled.

Even more routine is the replacement of damaged blood vessels and heart valves with factory-made substitutes and control of the heartbeat with man-made pacemakers. Furthermore the brains of monkeys have been removed and kept alive, independently, the brain responding to electrical stimuli in a manner reminiscent of the science fiction tale Donovan's Brain.

It is hard to believe that when Lord Byron, Percy Bysshe Shelley, and his wife Mary discussed the possible construction of a human being, early in the last century, they had such developments in mind.

Nevertheless in the book that resulted -- perhaps the most hair-raising in all science fiction -- Mary Shelley tells how her wretched hero, Victor Frankenstein, haunted dissecting rooms to obtain parts for the monster that was his ultimate undoing.

Some of the most recent studies in embryonic development have also produced monsters of a sort. Known as chimeras (for the mythical beast that was part lion, part goat, and part snake), they are formed by combining the embryonic cells of two different species at the earliest stage of development. The resulting individual displays features of both species.

Some of today's science fiction writers, such as Ray Bradbury, are telling us, as did E. M. Forster a generation ago, not just of future technological developments, but their possible consequences for survival of the human spirit and a livable world. If their warnings are heeded, we may yet avert the fate of their unfortunate protagonists.

(excerpted from Walter Sullivan: "Science and Fiction" in The New York Times Encyclopedic Almanac, 1971, pp. 449-450.)

APPENDIX B

Experimental Questionnaire

QUESTIONNAIRE

Please complete the following statements by circling the letter of the answer which seems to you closest to what Dr. Johnson actually said in his talk.

1. The fanciful tale of visiting the moon and being displayed there as a Freak was told by:
 - a. Don Juan
 - b. Cyrano de Bergerac
 - c. Don Quixote
 - d. Casanova

2. True Science Fiction arose at the time of:
 - a. Man landing on the Moon
 - b. The industrial revolution
 - c. Increased wealth and leisure time
 - d. The scientific revolution of the seventeenth century

3. Dr. Johnson points out that the original creator of Frankenstein was the wife of the poet:
 - a. Poe
 - b. Shelley
 - c. Whitman
 - d. Byron

4. Francis Godwin's Man In the Moone, published in 1638 was influential in the later work:
 - a. Cyrano de Bergerac
 - b. War of the Worlds
 - c. The Monkey's Brain
 - d. 20,000 Leagues Under the Sea
 - e. Robinson Crusoe

5. Besides predicting future technological advances, Dr. Johnson believes that science fiction writers are:
 - a. Taking a strong moral stand
 - b. Arguing for a slowing down of technological change
 - c. Pointing to the effect of technology on the human spirit
 - d. Striving mainly to amaze their readers

6. Dr. Johnson's central thesis is that whereas science fiction traditionally has been an escape from reality,
 - a. Science fiction has not outdistanced science
 - b. The escape today is toward ever more fanciful themes
 - c. Science has realized what early science fiction had predicted
 - d. It is now recognized as a legitimate literary form

7. The man who flew to the moon on swans was a motif influential in Gulliver's Travels, according to:
 - a. H. G. Wells
 - b. Ray Bradbury
 - c. Lord Byron
 - d. Marjorie Hope Nichols
8. Chimeras are:
 - a. Images in a laser hologram
 - b. Embryonic creatures with features of more than one distinct species
 - c. A type of science fiction fantasy
 - d. Strange characters which haunted dissecting rooms
9. The notion that travelling at high speed will cause a slowing of the aging process:
 - a. Came from H. G. Wells' War of the Worlds
 - b. Illustrates travel in another dimension
 - c. Was proposed by Albert Einstein
 - d. Is the opposite of what Ray Bradbury foresaw
10. One of the recent scientific developments which Dr. Johnson says was anticipated by the Buck Rogers and Flash Gordon comic strips is:
 - a. Television
 - b. Advanced medical technology
 - c. Space travel
 - d. Laser beams
 - e. Men on the moon
11. Domingo Gonsales was the character in an early science fiction account who:
 - a. Experienced the dominance of moon gravity over earth gravity
 - b. First used ray guns
 - c. Invented a time machine
 - d. Discovered high-speed particles
12. Among the sources of propulsion suggested by the earliest science fiction writers were:
 - a. Atomic power and electricity
 - b. Catapults and jet thrust
 - c. Wings and a whirlwind
 - d. Retrorockets and trajectory plots

13. A phenomenon which Francis Godwin wrote of and which all Apollo astronauts have experienced is:
- a. The slowing of time for men travelling at high speeds
 - b. Gradual slipping into the Moon's gravitational pull
 - c. Analagous behavior of atomic particles and orbiting satellites
 - d. Accuracy of lasers in measuring distances
14. Dr. Johnson sees the implanting of substitute organs in human beings as:
- a. A development foreseen in the creation of Mary Shelley's monster
 - b. Fulfilling the ancient dream of immortality
 - c. Indication of the close physiological ties of all men
 - d. Evidence that science has gone too far
15. Einstein's theory of relativity was anticipated ten years previously by:
- a. Flash Gordon
 - b. H. G. Wells
 - c. Ray Bradbury
 - d. Jules Verne
16. H. G. Wells' The Time Machine was one of the first novels to explore the scientific question of:
- a. Relativity
 - b. Gravity
 - c. Heredity
 - d. Civilization on the moon
17. According to Dr. Johnson, early Science Fiction contained:
- a. Much space travel and little fantasy
 - b. Much scientific data, and little narrative value
 - c. Many predictions but few details
 - d. Much satire and little science
18. Jules Verne's version of the first Moon flight:
- a. Bore little resemblance to the actual event
 - b. Placed the launch site in Massachusetts
 - c. Saw the flight as a military triumph
 - d. Used swans as the means of propulsion

19. Jules Verne's predictions about Moon flight were accurate even to the point that:

- a. Astronauts experienced time distortion
- b. Launching was accomplished by a multi-stage rocket as he had predicted
- c. Trajectory calculations were made in the exact city he named
- d. Retro-rockets were used only for landing.

20. Please place an "X" on the following scale indicating how you would rate Dr. Johnson's authoritativeness in the area of Science Fiction.

Not _____ Very
Authoritative Authoritative



APPENDIX C

Rokeach Dogmatism E Scale



ROKEACH DOGMATISM E SCALE

The following is a study of what the general public thinks and feels about a number of important social and personal questions. The best answer to each statement below is your personal opinion. We have tried to cover many different and opposing points of view; you may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others; whether you agree or disagree with any statement, you can be sure that many people feel the same as you do.

Mark each statement in the left margin according to how much you agree or disagree with it. Please mark every one. Write +1, +2, +3, or -1, -2, -3, depending on how you feel in each case.

+1: I agree a little
+2: I agree on the whole
+3: I agree very much

-1: I disagree a little
-2: I disagree on the whole
-3: I disagree very much

- _____ 1. The United States and Russia have just about nothing in common.
- _____ 2. It is only natural for a person to be rather fearful of the future.
- _____ 3. Man on his own is a helpless and miserable creature.
- _____ 4. A man who does not believe in some great cause has not really lived.
- _____ 5. It is only natural that a person would have a much better acquaintance with ideas he believes in than with ideas he opposes.
- _____ 6. In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.
- _____ 7. Of all the different philosophies which exist in this world there is probably only one which is correct.
- _____ 8. In times like these it is often necessary to be more on guard against ideas put out by people or groups in one's own camp than by those in the opposing camp.
- _____ 9. When it comes to differences of opinion in religion we must be careful not to compromise with those who believe differently from the way we do.
- _____ 10. Most people just don't know what's good for them.

- _____ 11. In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.
- _____ 12. A group which tolerates too much differences of opinion among its own members cannot exist for long.
- _____ 13. The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent.
- _____ 14. There is so much to be done and so little time to do it in.
- _____ 15. Most of the ideas which get printed nowadays aren't worth the paper they are printed on.
- _____ 16. In times like these, a person must be pretty selfish if he considers primarily his own happiness.
- _____ 17. There are two kinds of people in this world: those who are for the truth and those who are against the truth.
- _____ 18. In the long run the best way to live is to pick friends and associates whose tastes and beliefs are the same as one's own.
- _____ 19. A person who thinks primarily of his own happiness is beneath contempt.
- _____ 20. It is better to be a dead hero than to be a live coward.
- _____ 21. There are a number of people I have come to hate because of the things they stand for.
- _____ 22. In a heated discussion I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying.
- _____ 23. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.
- _____ 24. I'd like it if I could find someone who would tell me how to solve my personal problems.
- _____ 25. The present is all too often full of unhappiness. It is only the future that counts.
- _____ 26. In the history of mankind there have probably been just a handful of really great thinkers.

- _____ 27. The worst crime a person could commit is to attack publicly the people who believe in the same thing he does.
- _____ 28. Once I get wound up in a heated discussion I just can't stop.
- _____ 29. It is only when a person devotes himself to an ideal or cause that life becomes meaningful.
- _____ 30. My blood boils whenever a person stubbornly refuses to admit he's wrong.
- _____ 31. A person who gets enthusiastic about too many causes is likely to be a pretty "wishy-washy" sort of person.
- _____ 32. Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what's going on.
- _____ 33. Most people just don't give a "damn" for others.
- _____ 34. If given the chance I would do something of great benefit to the world.
- _____ 35. While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beethoven, or Shakespeare.
- _____ 36. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.
- _____ 37. It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects.
- _____ 38. If a man is to accomplish his mission in life it is sometimes necessary to gamble "all or nothing at all."
- _____ 39. Fundamentally, the world we live in is a pretty lonesome place.
- _____ 40. The main thing in life is for a person to want to do something important.