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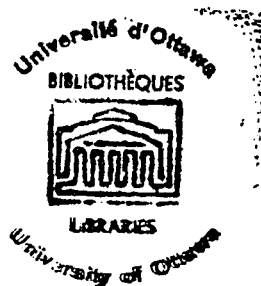
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AN EMPIRICAL STUDY OF THE EFFECT OF DOGMATISM
AND TENURE STATUS ON EDUCATIONAL INNOVATIVENESS

by James C. Fish



Thesis presented to the School of Graduate Studies
as partial fulfillment of the requirements for the
degree of Ph.D. in Education

UNIVERSITY OF OTTAWA
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CURRICULUM STUDIORUM

James Collins Fish was born December 25, 1937,
in Yonkers, New York. He received the Bachelor of Science
degree from Manhattan College, Bronx, New York, in 1960.
He received the Master of Arts degree from New York
University, New York, in 1963.

TABLE OF CONTENTS

Chapter	page
INTRODUCTION	viii
I.- REVIEW OF THE LITERATURE	1
1. Rogers' Approach to Prediction	2
2. Receptivity Toward Educational Innovation	5
3. Predictor Variables	8
A. Rokeach's Concept of Dogmatism	8
B. Tenure Status	26
4. Consideration of Dogmatism, Tenure Status, and Receptivity of Junior High School Teachers Toward Innovation	32
A. Junior High School	32
B. Junior High School Teachers	34
5. Specific Rationale for the Hypotheses	40
II.- EXPERIMENTAL DESIGN	52
1. The Sample	52
2. Definitions and Description of Instruments	55
A. Definitions	55
B. Description of Instruments	61
3. Collection of Data	78
4. Analysis of the Data	82
III.- PRESENTATION AND DISCUSSION OF RESULTS	86
1. Results of Testing Hypothesis 1	86
A. Discussion of Results of Testing Hypothesis 1	87
2. Results of Testing Hypothesis 2	92
A. Discussion of Results of Testing Hypothesis 2	93
3. Results of Testing Hypothesis 3	95
A. Discussion of Results of Testing Hypothesis 3	98
4. Further Discussion and Research	99
IV.- SUMMARY, IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH	103

TABLE OF CONTENTS

v

Chapter	page
1. Summary of the Findings	104
2. Implications	105
A. Implications for Theory	105
B. Relationship of Findings to Past Research	108
C. Implications for School Administrators	110
3. Suggestions for Further Research	114
A. The Study of Some Intervening Variables	114
B. A Strategy for Future Research	116
BIBLIOGRAPHY	118
Appendix	
1. QUESTIONS COMPRISING THE PILOT SCALE USED IN DEVELOPING THE <u>EDUCATIONAL INNOVATION ATTITUDE SCALE</u>	127
2. COVER LETTER FOR THE STUDY	132
3. DATA COLLECTING INSTRUMENTS - <u>PERSONAL DATA FORM, TWENTY-ITEM DOGMATISM SCALE, EDUCATIONAL INNOVATION ATTITUDE SCALE</u>	134
4. DISTRIBUTION OF <u>EDUCATIONAL INNOVATION ATTITUDE SCALE</u> SCORES AND <u>DOGMATISM SCALE</u> SCORES BY TENURE STATUS	142
5. ABSTRACT OF <u>AN EMPIRICAL STUDY OF THE EFFECT OF DOGMATISM AND TENURE STATUS ON EDUCATIONAL INNOVATIVENESS</u>	151

LIST OF TABLES

Table	page
I.- Tenure Status Breakdown of the Population of Junior High School Teachers Completing the Questionnaires	56
II.- Distribution of Teachers by Age	57
III.- Distribution of Teachers by Years of Teaching Experience	58
IV.- A Categorizing of the Questions Into Four Areas of Educational Innovation Used in the Pilot Scale	66
V.- The t-Scores of the Forty-Eight Questions Comprising the Pilot Scale	67
VI.- Correlation Between "Resistance to Educational Innovation Measure" and the Variables of Age, Closed-Mindedness and Expenditure per Pupil	69
VII.- Questions Comprising the <u>Educational Innovation Attitude Scale</u>	72
VIII.- Distribution of Respondents' Dogmatism Scores (N=302)	81
IX.- Designation of Groups According to Tenure Status and Dogmatism	85
X.- Means and Standard Deviations of <u>Educational Innovation Attitude Scale</u> Scores by Tenure Status and Dogmatism	88
XI.- Analysis of Variance Results for Resistance to Educational Innovation Among Tenure Status and Dogmatism	89
XII.- A Comparison of Closed-Mindedness, "Tenure Status", and Resistance toward Educational Innovation Correlations in the Present Study and the Ramer Study	101

LIST OF FIGURES

Figure	page
1.- Interaction Between Tenure Status and Dogmatism based on Resistance to <u>Educational Innovation Attitude Scale</u> Data . .	97

INTRODUCTION

In the years immediately ahead, the school administrator will be faced with decisions concerning the initiation and implementation of educational change which will affect the character and quality of education. Public demand for more effective educational programs has been translated into demands for new educational programs to meet the needs of a changing social environment.

The widespread concern that educational change must be accelerated within the school system has confronted the school administrator with many problems. One important kind of problem, which most, if not all, school administrators face at various times during the initiation and implementation of educational change is that of selecting and retaining innovative teachers.

Within the educational setting there are at least two individuals upon whom the dynamics of educational change depend: the administrator contemplating and initiating the change and the classroom teacher. A successful implementation of educational change often demands that the administrator assess those characteristics of the teachers which indicate innovativeness. Because of this need, it seems

necessary for research efforts to investigate teacher characteristics insomuch as it seems logical to assume that certain personal and social characteristics of teachers and innovativeness are interrelated.

It would seem reasonable to expect that an innovation perceived as desirable by a teacher will have a greater chance of adoption than an innovation perceived as undesirable. Indeed, if the school administrator is to be effective in initiating educational change, he cannot adopt an attitude of indifference concerning the role of the classroom teacher in the change process.

Surprisingly little research has been published about the teacher as the unit of analysis in the process of educational change, whereas in the literature dealing with educational innovativeness, the major focus has been on the school or school system as the unit of analysis. In addition the majority of studies were directed toward the solution of practical problems and less attention was given to theoretical concerns than was the case in other research traditions.

Accordingly, a theoretical and interdisciplinary approach has not been used sufficiently in prior studies dealing with educational innovativeness. In response to

INTRODUCTION

x

this need it was decided to focus on the relationship of belief systems and tenure status of junior high school teachers and attitudes toward educational innovation. Moreover, there has been a lack of agreement in the literature concerning the nature of the relationship of dogmatism and tenure status to receptivity toward innovation. Some researchers have reported a positive association between closed-mindedness, tenure and resistance to innovation, while still others have failed to find any such relationship. Therefore, it must be concluded that further research is necessary before anything more definite can be said regarding these factors and receptivity toward educational innovation. The present study is designed to test certain implications of the personality construct of dogmatism and tenure status with respect to the receptivity or resistance of junior high school teachers toward educational innovation. It is expected that the present study will make a contribution to the existing although limited available knowledge about the classroom teacher and educational change. It is further expected that the interdisciplinary orientation of the present study will provide further impetus for extending the utility of

certain behavioral disciplines within the field of education. Finally, these contributions are expected to have practical implications concerning which teachers within a given school system are more likely to be receptive toward educational innovation. It is expected that the results can be directly beneficial to educators interested in initiating and implementing educational change.

The thesis is arranged into four chapters. Chapter I provides the theoretical rationale and a review of pertinent literature. Chapter II contains a description of the experimental design. Chapter III presents the results and a discussion related to the testing of the hypotheses. Chapter IV sets forth the summary, implications and suggestions for further research. A bibliography, appendices, and an abstract conclude the thesis.

CHAPTER I

REVIEW OF THE LITERATURE

The present research was conducted to extend the utility of certain concepts in Rogers' approach to predicting innovativeness by advancing explanatory variables adopted from the disciplines of education and social psychology. Specifically, a field study was designed to examine the relationships between receptivity toward educational innovation, as defined by Ramer, tenure status as described by Anderson, and dogmatism as defined by Rokeach.

No study has emphasized the interaction of dogmatism and tenure status on receptivity toward educational innovation, thus a portion of this study has been designed to focus on just such an interaction.

The following steps are followed in the establishment of the theoretical rationale for the present study. First, Rogers' approach to prediction will be assayed, and his procedures for selecting predictor variables to correlate with a measure of receptivity toward innovation will be explained. On the basis of this examination, the varia-

bles of receptivity toward educational innovation, dogmatism, and tenure status are established, on theoretical grounds and through empirical research, as important concepts in developing an approach for predicting educational innovativeness.

In the second section, Ramer's concept of receptivity toward educational innovation will be defined. The third section considers the predictor variables of dogmatism and tenure status. The fourth section considers dogmatism, tenure status and receptivity of junior high school teachers toward educational innovation. Following this, the final section establishes the rationale for the hypotheses of the study.

1. Rogers' Approach to Prediction

Concerned with earlier efforts to predict receptivity toward innovation, Rogers¹ conceived of a theoretical approach to overcome what seemed to be some of the inadequacies of the earlier conceptualizations regarding the nature of innovativeness.

1 Everett M. Rogers, "A Conceptual Variable Analysis of Technological Change", Rural Sociology, Vol. 23, No. 2, June 1958, p. 136-145.

Rogers' major objection to past efforts in the diffusion research traditions was that the research failed to produce satisfactory theoretical grounds for selecting independent variables to correlate with a measure of an individual's receptiveness toward innovation. He also felt that previous efforts were too limited; that is, they were not interdisciplinary in their focus.

Rogers' theoretical position for predicting an individual's receptiveness or resistance toward innovation within a social system was largely derived from his analysis of over 500 diffusion research studies reported in the Diffusion of Innovations² and the work of Parson and Shils.³ Specifically, his approach consists of a conceptual variable analysis. In Rogers' view, a "conceptual variable analysis is a method of relating theory to research and research to theory."⁴

2 Everett M. Rogers, Diffusion of Innovations, New York, Basic Books, 1960, xiii-367 p.

3 Talcott Parsons and Edward A. Shils (eds.), Toward a General Theory of Action, Cambridge, Massachusetts, Harvard University Press, 1952, p. 1-56.

4 Rogers, Diffusion of Innovations, p. 308.

Central to Rogers' approach⁵ is the identification of certain variables which have contributed to the prediction of innovation. Rogers incorporates in his theoretical framework, a person-innovation sequence. In this paradigm, the independent variables are related to one dependent variable. This basic approach has been used to derive probability statements indicating the likelihood of certain individuals being receptive toward innovation.

The discussion will now be directed toward the concept of receptivity toward educational innovation.

5 Rogers, Op. Cit., p. 300-311.

2. Receptivity Toward Educational Innovation

A review of diffusion research studies reveals a wide variety in the vocabulary employed to refer to the concept of innovation. In the present research, innovation will be defined according to Ramer. He reflects the viewpoint of Miles⁶ when he refers to an innovation as a deliberate, novel, specific change thought to be efficacious by an individual for accomplishing the goals of the school system.⁷ Ramer⁸ also contends that receptivity toward educational innovation reflects an individual's professed attitude toward educational innovation.

The Educational Innovation Attitude Scale (E.I.A.S.) was developed by Ramer⁹ to detect the degree of an individual's receptivity toward educational innovation. He contends that an individual's attitude toward educational

6 Matthew B. Miles, "Educational Innovation: the Nature of the Problem", in Matthew B. Miles (ed.), Innovation in Education, New York, Teachers College, Columbia University, 1964, p. 14-15.

7 Burton Ramer, The Relationship of Belief Systems and Personal Characteristics of Chief School Administrators and Attitudes Toward Educational Innovation, unpublished doctoral thesis presented to (Department of Educational Administration), State University of New York at Buffalo, 1967, p. 6.

8 Ibid., p. 33-34.

9 Ibid., p. 34-39.

innovation could be placed on a continuum of receptivity -- ranging from low receptivity to high receptivity. In effect, Ramer's innovativeness measure operationally defines the extent of an individual's receptivity toward educational innovation. Thus, in the present study, innovativeness and receptivity toward innovation are used interchangeably.

It is also noted that innovativeness has been considered by other diffusion researchers¹⁰ as (1) the acceptance of new ideas or practices, (2) a general behavioral disposition, (3) a kind of social action, and (4) a tendency to adopt new ideas and practices. But it is a measure of receptivity toward educational innovation which is used in the present study as the criterion or dependent variable.

Basic to the present study is the assumption concerning the potential influence of the classroom teacher in the process of educational change. A successful implementation of educational change often requires that the teacher be receptive toward educational innovation during

10 John H. Holmes, Dogmatism as a Predictor of Communication Behavior in the Diffusion of Consumer Innovations, unpublished doctoral thesis, presented to (Department of Communication), Michigan State University, East Lansing, 1967, p. 27.

the initiation stage of the change process. This role places him in a key position to influence the acceptance or rejection of educational innovation. In speaking of change and the classroom teacher, Wiens has stated that:

...administrators may have to re-examine some of their own attitudes and methods, particularly if they wish to promote innovation in their schools. They will have to become more aware of the importance of the informal influence structure in their schools, and they will have to be perceptive enough to be able to identify the influential members of this informal structure.¹¹

If the classroom teacher has the influence status described by Wiens, then his receptivity toward educational innovation may determine whether or not an innovation is adopted. The present study analyzes the relationship of dogmatism and tenure status of junior high school teachers to receptivity toward educational innovation.

Since the present study proposed to investigate the relationship between receptivity toward educational innovation and two predictor variables, the discussion will now focus on Rokeach's concept of dogmatism and Anderson's description of tenure status, respectively.

¹¹ John Wiens, "Change and the Classroom Teacher", The Canadian Administrator, Vol. 7, No. 4, January 1968, p. 16.

3. Predictor Variables

This section elucidates the theoretical approach espoused by Rogers for selecting predictor variables. It further presents definitions of the concept of dogmatism and tenure status, the hypothetical relationships, and a review of research which considered the concepts and their relationships with measures of innovativeness.

A. Rokeach's Concept of Dogmatism

Rogers¹² suggests that a profitable approach to the research is the study of personality as it effects innovativeness. He points out that information about the personality of receptive and resistive individuals is needed for the development of a theory about the nature of the change process.

Rogers¹³ indicated from his analysis of studies in rural sociology that new ideas appeal to some individuals more than to others. For example, the receptivity of farmers to new agricultural developments depends on the degree

12 Rogers, "A Conceptual Variable Analysis of Technological Change", p. 136-145.

13 Rogers, Diffusion of Innovations, p. 178.

that their belief systems are open or closed. In this connection, Rokeach's concept of dogmatism offers support to the idea that open and closed-mindedness might affect the receptivity of individuals toward educational innovation. From this point of view, conceptualizations that serve as the theoretical base for the dogmatism variable are drawn.

Rokeach, in The Open and Closed Mind,¹⁴ proposes that certain behavior distinctions within the dogmatic personality framework vis-à-vis the open mind-closed mind continuum govern an individual's patterns of behavior. Through extensive clinical and experimental work, Rokeach and his associates^{15,16} developed a psychological theory of belief systems. Prompted by the research of Adorno et al.¹⁷

14 Milton Rokeach, The Open and Closed Mind, New York, Basic Books, xv-447 p.

15 Milton Rokeach, W.C. McGovney and M.B. Denny, "A Distinction Between Dogmatic and Rigid Thinking", Journal of Abnormal and Social Psychology, Vol. 51, No. 1, July 1955, p. 87-93.

16 Milton Rokeach and Benjamin Fruchter, "A Factorial Study of Dogmatism and Related Concepts", Journal of Abnormal and Social Psychology, Vol. 53, No. 3, November 1956, p. 356-360.

17 T.W. Adorno et al., The Authoritarian Personality, New York, Harper, 1950, 1-600 p.

on authoritarian personalities, Rokeach formulated a personality theory that ranges over a complete spectrum of beliefs incorporated in an individual's cognitive system. Moreover, he conceives of personality as being an organization of beliefs having a definable and measurable structure.

In the following quotation, Rokeach classified what he meant by an individual's belief system:

We have to infer what a person really believes from all the things he says and does. It is in this sense that we would use the term belief, and the total belief-disbelief system would thus be an organization of verbal and nonverbal, implicit and explicit beliefs, sets, or expectancies.¹⁸

According to the rationale underlying the theory, Rokeach affirms¹⁹ that all individuals possess belief systems. Individuals having relatively open systems are referred to as open-minded, and those having closed systems are defined as closed-minded, or dogmatic.²⁰ The degree

18 Rokeach, The Open and Closed Mind, p. 32.

19 Ibid., p. 31-98.

20 Ibid., p. 54-70.

to which a belief system is open or closed is determined by the structure of its parts. The structure reflects beliefs which range along a continuum from central beliefs, concerning the nature of self and reality, to peripheral or inconsequential beliefs derived from authority. These latter beliefs are concerned with experiences and personal preferences.

Rokeach points out:

...it is the structural interconnections among central, intermediate, and peripheral beliefs that gives the total belief-disbelief system its integrated, holistic, and systematic character.²¹

Ideas and new concepts generally are introduced at the inconsequential level. However, before new concepts are assimilated into a person's belief system, the new ideas must first be tested for compatibility with the individual's central beliefs and then screened at the intermediate level. If the new ideas are compatible with the authorities which undergird the intermediate beliefs, the new concepts will be incorporated into the belief system.

Rokeach defined a given personality as an organization of beliefs having a definable and measurable structure. The

21 Rokeach, The Open and Closed Mind, p. 50.

Dogmatism Scale has been developed by Rokeach to measure the extent to which belief systems are open or closed.

According to Rokeach the scale attempts to measure:

...the extent to which a person can receive, evaluate, and act on relevant information received from the outside on its own intrinsic merits, unencumbered by irrelevant factors in the situation....²²

Kemp,²³ Croft,²⁴ and Vacchiano et al.²⁵ conducted extensive research using the Dogmatism Scale. The evidence presented by these studies supports the contention that perceptual distinctions exist between open and closed-minded individuals as defined by Rokeach. Moreover, Croft²⁶ reports differences in perceptual ability between open and

22 Rokeach, The Open and Closed Mind, p. 57.

23 C. Gratton Kemp, "Perception of Authority in Relation to Open and Closed Belief Systems", Science Education, Vol. 47, No. 5, December 1963, p. 482-484.

24 John C. Croft, Open and Closed-Mindedness and Perceptions of Leader Behavior, Cooperative Research Project No. S-045, University Park, Pennsylvania State University, 1964, vi-97 p.

25 Ralph B. Vacchiano et al., "Personality Correlates of Dogmatism", Journal of Consulting and Clinical Psychology, Vol. 32, No. 1, February 1968, p. 83-85.

26 Croft, Op. Cit., p. 66.

closed-minded principals. He reports that open-mindedness was related to perceptual accuracy. Croft also suggested that a measure of resistance to change be included in studies which focus on differences between open and closed-mindedness. Within this frame of reference, a major question in the present study was whether or not an individual psychologically characterized as open-minded also perceives innovativeness as more desirable than a person who is closed-minded. The assumption here suggests that the individual's personality determines his receptivity to consider and evaluate new ideas on their own merits.

In recapitulation, major assumptions of Rokeach's theory posit the different behavioral characteristics of open-minded and closed-minded individuals. Having discussed with Rokeach at Michigan State University the concept of dogmatism as a personality variable which differentiates between individuals who are receptive or resistive toward innovation, Holmes reports that dogmatism can be described as a personality dimension of innovativeness:

Dogmatism is defined as a personality variable which governs the individual's receptivity or lack of receptivity to new ideas and further includes how a person perceives, evaluates, acts and reacts to such ideas.²⁷

According to Rokeach, dogmatism is related to the structure of an individual's belief system and the way in which the various beliefs are interrelated within the total belief system. In this connection, persons having different belief systems differ in the manner in which they assess information and perceive new ideas. More specifically, a closed-minded person, as described by Rokeach, has a relatively undifferentiated belief-disbelief system and tends to isolate different clusters of beliefs which may logically appear to interact. Closed-minded individuals, because of their overdependence on authority, tend to view new ideas as threatening or hostile until they have been validated by an accepted authority. On the other hand, the open-minded person receives information about the world he lives in with far greater objectivity. Not feeling threatened by what is new, the open-minded person does not need to distort the information he receives.

27 Holmes, Op. Cit., p. 17.

Closed-minded individuals, provided they behave according to the tenets of Rokeach's theory, will have different perspectives than open-minded persons. Therefore, it is expected that closed-minded individuals will react in different ways from open-minded persons toward educational innovation. For this reason, dogmatism is used as a predictor variable in the present study.

A review of the literature indicates that there have been a number of attempts to investigate the relationship between resistance to innovation and dogmatism in various traditions of diffusion research. For example, in the rural sociology tradition of diffusion research some theorists such as Rogers²⁸ have tended to emphasize the concept of dogmatism as a predictor of innovativeness.

Using a sample of twenty-three farm operators, Rogers examined the relationship between dogmatism and innovativeness. He hypothesized a negative correlation between closed-mindedness and innovativeness as measured by the Adoption-of-Farm Practice Scale which contained

28 Everett M. Rogers, "Personality Correlates of the Adoption of Technological Practices", Rural Sociology, Vol. 22, No. 3, September 1957, p. 267-268.

twenty-four practices recommended by the Iowa Extension Service. He reported that the correlations between scores on a ten-item Dogmatism Scale and the adoption scale was $-.15$. This was in the expected direction but was not significant. Although Rogers admits that the results may be conditioned by the small sample, or the nature of the innovations considered for adoption, nevertheless the significance of his research is that it attempted to relate the theories of dogmatism and innovativeness by focusing on the individual as the unit of analysis in the process of change.

Further research conducted in the rural sociology tradition was undertaken by Jamias,²⁹ who correlated closed-mindedness and resistance to innovation with a sample of 147 farmers from Lapeer County, Michigan. The basic hypothesis tested in the study was that closed-minded farm operators would have a lower rate of adoption of new practices than open-minded farm operators. Using the twenty-item short form of the Rokeach Dogmatism Scale

29 Juan F. Jamias, The Effects of Belief System Styles on the Communication and Adoption of Farm Practices, unpublished doctoral thesis, presented to (Department of Communication), Michigan State University, East Lansing, 1964, 1-118 p.

developed by Troidahl and Powell³⁰ and a general measure of innovativeness obtained from the number of practices an individual had adopted at a given point in time, Jamias found that farmers who were relatively high on dogmatism adopted fewer practices. A Pearson product-moment correlation of $-.235$ was reported, which is significant at the $.01$ level. The significance of the study is that it provides empirical support to both Rokeach's and Rogers' contention that persons with closed belief systems would be less receptive toward innovation than persons with open belief systems.

Based on the selected studies reported above, behavioral characteristics of open-minded and closed-minded individuals have been examined in connection with innovative behavior in the rural sociology tradition of diffusion research. Specifically, Rogers posited the theoretical link between Rokeach's theory and innovativeness. Jamias has substantiated a significant relationship between open-mindedness and the receptivity of farmers toward agricultural innovations. Further research based on these

30 Verling C. Troidahl and Frederic A. Powell, "A Short-Form Dogmatism Scale for Use in Field Studies", Social Forces, Vol. 44; No. 2, December 1965, p. 211-215.

studies was conducted in other diffusion research traditions.

Defining dogmatism as a personality variable which governs a person's receptivity or lack of receptivity to new ideas and further includes how an individual perceives, evaluates, and reacts to such ideas, Holmes³¹ examined the relationship between dogmatism and innovativeness in the industrial tradition of diffusion research. One of the hypotheses tested was that low dogmatics are more innovative than high dogmatics. Holmes reports no conclusive evidence in his study to substantiate this general hypothesis. His findings reveal that the correlation between dogmatism and innovativeness is not significantly different from zero. This apparent lack of significant relationship is contrary to the findings of the agricultural study of Jamias³², and thus necessitates further investigations of dogmatism as a predictor of innovativeness.

Within the educational tradition four studies were examined which focused on dogmatism and measures of

31 Holmes, Op. Cit., p. 77-78.

32 Jamias, Op. Cit., p. 76-81.

educational innovation. The following review is therefore confined specifically to the use of dogmatism in educational research and of its relationship to innovativeness.

Using the twenty-item Dogmatism Scale developed by Troidahl and Powell, Childs³³ conducted a study to determine if a relationship exists between belief systems and adoption rate in eight selected school districts in Michigan. The study was designed to test two hypotheses:

1. a greater number of administrators who are in innovative school systems will have open belief systems than is the case with administrators in non-innovative school systems; and
2. a greater number of teachers who are in innovative school systems will have open belief systems than is the case with teachers in non-innovative school systems.

An innovative school district was defined as a school district which ranks in the upper one percent of all school districts on the number of new practices reported in the Five-Year Survey of Progress in Michigan Schools. A

33 John W. Childs, A Study of the Belief Systems of Administrators and Teachers in Innovative and Non-Innovative School Districts, unpublished doctoral thesis, presented to (Department of Educational Administration), Michigan State University, East Lansing, 1965, vii-124 p.

non-innovative school district was defined as a school district which ranks in the lower twenty per cent of the districts.

The first hypothesis, which predicted a larger proportion of open-belief system administrators in innovative school systems than in non-innovative school systems, was not supported. The second hypothesis, which predicted a larger proportion of open-belief-system teachers in innovative school systems than in non-innovative school systems, was supported.

Childs³⁴ suggests that the findings which contradicted his first hypothesis may have been due to several factors. Because the sample of administrators was relatively small, and because the administrators as a group tended to rank lower on the Dogmatism Scale, differences between administrators in both innovative and non-innovative school districts may have been masked. Childs³⁵ also admits that difficulty was experienced in collecting data on the adoption of various educational practices; nevertheless he reports that a relationship does exist between the

34 Childs, Op. Cit., p. 66.

35 Ibid., p. 63.

adoption of a new practice and the degree to which a classroom teacher has an open belief system.

The findings of Childs' study "suggest that knowledge of belief systems of individual teachers might provide a cue to increasing innovation rates by selecting open-belief-system teachers for the initial trial of new instructional practices."³⁶ With respect to this point, the present study theorizes that dogmatism is a personality variable which governs the individual's receptivity or reluctance toward innovation. The conflicting evidence reported by Childs also invites a closer look at the individual to see why people differ in their attitudes toward educational innovation.

Ramer³⁷ has completed a very thorough study in examining the relationship between innovativeness and dogmatism. His study was designed to determine whether or not closed-minded administrators were more resistive toward educational innovation than their open-minded counterparts. The theoretical rationale was based on the

36 Childs, Op. Cit., p. 74.

37 Ramer, Op. Cit., p. 49-52.

idea that differences in innovativeness can be related to unique characteristics of an individual's personality. The findings supported the hypothesis of a significant positive relationship between closed-mindedness and resistance to educational innovation. The significance of Ramer's work to the present study lies in the fact that it does lend support to the theoretical conceptualizations of Rokeach and Rogers that the closed-minded individual is resistant to innovation. It would be interesting to discover whether the results obtained with a teacher population, as opposed to an administrator population, in New York State would parallel Ramer's finding related to the variables of dogmatism and resistance to educational innovation.

Following along the same line, Marion³⁸ investigated the relationship between a number of personal and social factors and innovativeness. One of the basic hypotheses was that an inverse relationship between dogmatism and innovativeness exists.

38 Guy Bertrand Marion, A Study of Selected Factors Related to the Innovativeness of Elementary School Principals, unpublished doctoral thesis presented to (Department of Educational Administration), University of Alberta, Edmonton, 1966, p. 1-176.

The sample for the study was composed of thirty-six elementary school principals in Edmonton, Canada. Innovativeness is the dependent variable in the study and is defined as the number of educational innovations a principal had adopted from five possible innovations: departmentalization; subject consultants; parent-teacher interviews; French instruction; and television. Adoption of an innovation was measured by the number of innovations adopted and the extent of use made of each innovation. Dogmatism was measured by the principals' responses to the Rokeach Dogmatism Scale. The findings of the study indicate that dogmatism was negatively related to innovativeness but the relationship was not sustained at statistically significant levels. Although the hypothesis of an inverse relationship between dogmatism and the measures of innovativeness was not substantiated, Marion points out that slightly stronger relationships were found between dogmatism and the adoption of certain innovations such as consultants and television.

One possible explanation for the low correlations is that the innovations that constituted Marion's Indices of Innovativeness were selected from a list of innovations supplied by the Edmonton Public School Board's Central

Office Staff. Therefore, the principals high on dogmatism may have relied heavily upon the authority of the central board, and may have been influenced and accordingly changed their beliefs as a result of the information they received from the central board. In summary, the conflicting results reported in the studies of Ramer and Marion may be attributed to the differences in the designs employed in the two studies. Marion utilized school innovativeness as the dependent variable, while Ramer utilized the individual administrators' receptivity toward educational innovation as the dependent variable.

In a study dealing with the personality structure of 263 teachers of grades K-12, Kerelejza³⁹ examined the relationships of closed and open-mindedness to factors that teachers perceived as barriers to curriculum change. The basic assumption of the study was that closed-minded teachers would have different reactions to change than

39 Joan D. Kerelejza, The Relationship of Closed and Open Mindedness to Factors that Selected Groups of Teachers Regard as Barriers to Curriculum Change, unpublished doctoral thesis presented to (Department of Education), University of Connecticut, Storrs, 1967, viii-108 p.

open-minded teachers. In this connection, the restricted way in which the closed-minded individual perceives situations should cause him to identify more barriers to change than the open-minded teacher. Dogmatism was assessed by Rokeach's Dogmatism Scale, and barriers to change were assessed by Dempsey's Curriculum Barriers Questionnaire. The findings revealed that closed-minded teachers in the sample identified a significantly larger number of total barriers to curriculum change than did open-minded teachers. In addition, the closed-minded teachers identified a significantly larger number of curriculum barriers originating within the self than did open-minded teachers.

The study suggests that the closed-minded teacher operates within a consistent pattern of belief congruence. Specifically, the degree of dogmatism is related to the number of barriers to change identified by a teacher. Closed-minded individuals, because of their overdependence upon authority, would also tend to perceive new ideas or innovations as threatening and less desirable than open-minded individuals, unless the innovations were proposed by authority figures. As a consequence, the assumption can be made that closed-minded persons, provided they behave

according to the tenets of dogmatism theory, will have different perceptions than open-minded individuals. In line with this assumption, it is expected that closed-minded persons will react in different ways from open-minded individuals toward innovation. For this reason, an inverse relationship between dogmatism and receptivity to educational innovation is hypothesized.

B. Tenure Status

The second predictor variable examined in the study is tenure status. Rogers⁴⁰ has indicated the importance of selecting teacher characteristics within a school system as a predictor variable.

For purposes of this study, tenure is defined in terms of the school system's classification procedure. Two levels exist: tenure and non-tenure. Teachers who have demonstrated professional competence over a three-year probationary period in the school system receive tenure within the school district. Non-tenured teachers have taught

40 Everett M. Rogers, "What Are Innovators Like", in Richard O. Carlson (ed.), Change Process in the Public Schools, Eugene, Oregon, Center for Advanced Study of Educational Administration, University of Oregon, 1965, p. 55-64.

in the school system for fewer than three years.

A perusal of the educational literature reveals that the term "tenure" has been used as a predictor variable for correlation with a measure of innovativeness. This is true in relation to research and theory. Some theorists, such as Griffiths, emphasize the proposition that: "The number of innovations is inversely proportional to the tenure of the chief administrator."⁴¹ In discussing the theoretical rationale for this proposition, Griffiths states:

The model indicates some reasons for this. All of the processes which bring about the steady state have been given time to operate. Feedback channels have become fully established. Progressive segregation has set in; the sub-systems have become structured and have gained relative independence. Change is thus more difficult, because the frequency of interaction between sub-systems is decreased, and the chances for effective communication are diminished.⁴²

In a different context, Atwood⁴³ reports that the majority of new teachers in a school were more receptive toward a new guidance program than their more experienced

41 Daniel E. Griffiths, "Administrative Theory and Change in Organizations", in Matthew B. Miles (ed.), Innovation in Education, New York, Teachers College, Columbia University, 1964, p. 434.

42 Ibid., p. 434.

43 M.S. Atwood, "Small-Scale Administrative Change: Resistance to the Introduction of a High School Guidance Program", in Miles (ed.), Op. Cit., p. 49-77.

counterparts. Yet conflicting results have been reported by Eichholz and Rogers' study.⁴⁴ The findings indicated that the attitudes of known rejectors of educational innovations were not related to teaching experience. Wiens presents a possible explanation for these conflicting findings. The very high proportion of teachers without tenure in the schools frustrates attempts to test this variable. In recommending a solution, he proposed that: "It might be well to replicate certain aspects of the present study in which the average tenure of teachers is higher than it was in the present sample."⁴⁵

Anderson⁴⁶, on the other hand, describes tenure as a school board's classification of teachers. Three categories were identified by Anderson⁴⁷ in order to

44 Gerhard Eichholz and Everett M. Rogers, "Resistance to the Adoption of Audio-Visual Aids by Elementary School Teachers: Contrasts and Similarities to Agricultural Innovation", in Miles (ed.), Op. Cit., p. 299-316.

45 John Wiens, Attitudes, Influence and Innovativeness: An Analysis of Factors Related to Innovativeness in Educational Organizations, unpublished doctoral thesis presented to the (Faculty of Educational Administration), University of Alberta, Edmonton, 1967, p. 152.

46 James G. Anderson, Bureaucracy in Education, Baltimore, The Johns Hopkins Press, 1968, p. 58.

47 Ibid., p. 58-59.

ascertain the teacher's tenure status. In the first category are tenured teachers who have taught for at least two years in the school system. In the second category are non-tenured teachers who have taught in the school system for fewer than two years. In the third category are special substitute teachers who lack either certification or academic requirements. It is evident from both theory and research that the "tenure" concept is a "coat of many colors." To avoid the problems which accompany any attempt to define this construct globally, the present study will focus on tenure status as a school system's classification of teachers. The following review, therefore, is confined specifically to the use of tenure status as a classification of teachers within a school district. The use of the term in the present study is in keeping with Anderson's description of tenure as a classification procedure within a school system.

Commenting on the data collected from junior high school teachers in a large metropolitan school system, Anderson suggests that:

Tenure status of secondary school teachers was chosen as an important variable because the school system investigated classifies teachers according to this scheme without regard for other factors such as age, academic preparation beyond the bachelor's degree, and professional experience. Also the salary schedule, retention policies, and teacher assignment policies in this school system are all heavily based on tenure. Furthermore, subsequent analysis of the data revealed that tenure and non-tenure teachers are subject to different degrees of control in instructional policies and differ in their attitudes toward teacher unions, in satisfaction with the school administration, and in the approaches they adopt to instruction.⁴⁸

The sample for the present study was taken from junior high schools in a large urban school system. Thus, as in Anderson's study, teachers with different professional status participated in the study.

In a different context, Bienenstok and Sayres⁴⁹ propose that certain organizational factors of the junior high school environment tend to be associated with unfavorable attitudes toward junior high teaching. Notable among these factors is concern over the role of the junior high school teacher, and the goals and objectives of junior high school teaching.

48 Anderson, Op. Cit., p. 59.

49 Theodore Bienenstok and William C. Sayres, Problems in Job Satisfaction Among Junior High School Teachers, Albany, New York, State Education Department (Division of Research), 1963, ix-103 p.

Therefore, the relationship between innovativeness and the bureaucratic structure of the junior high school environment also indicates the need to look at how the teacher's tenure status may effect his receptivity toward innovation. In speaking of such a relationship Anderson has stated:

Goal displacement, or resistance to change, may be indigenous to certain professions and to certain subgroups within professions. In this study we have seen that the profession and the general acceptance or non-acceptance of innovation by members of it appear to be of particular importance in determining an individual's attitude toward innovation.⁵⁰

The present study accepts Anderson's contention that tenure status serves as a dimension of organizational authority. Based on this assumption, tenure status necessitates further investigation as an important variable related to the receptivity of junior high school teachers toward educational innovation.

50 Anderson, Op. Cit., p. 153.

4. Consideration of Dogmatism, Tenure Status, and Receptivity of Junior High School Teachers Toward Innovation

A major focus in this study deals with the relationships of dogmatism and tenure status of junior high school teachers to attitudes toward educational innovation. The professional literature available on innovativeness is quite abundant but does not yield much explicit information applicable to the present study. However, a number of studies have been performed which have produced results that are implicitly related to the present study. The following discussion indicates the relevance of these selected studies to the planning of this investigation.

A. Junior High Schools

Within the context of the junior high school environment, an investigation of the junior high school teaching role in New York State reports findings that indicate noticeable differences in the teachers' attitudes, beliefs, and perceptions from the standpoint of teaching experience within junior high schools.⁵¹

51 Bienenstok and Sayres, Op. Cit., p. 10-15.

The sample was composed of 1,349 teachers from junior high schools in New York State. The results from the data indicated the need to focus on characteristics of junior high school teachers. The authors suggest that:

The administrator who familiarizes himself with the nature of the role of junior high school teacher in the society at large will be better equipped to bolster the role in a given institutional setting. He will better understand the potential conflicts and ambiguities which, in the absence of administrative clarification and support, tend to be disruptive and frustrating to the junior high teacher.⁵²

A major emphasis in the present study deals with characteristics of junior high school teachers, based on their attitudinal responses toward educational innovation. Ironically, within the junior high school environment there has been very little research on characteristics of teachers and innovative behavior. Eichholz and Rogers⁵³ have indicated that there is a paucity of studies in the literature dealing with the classroom teacher as the unit of analysis. In addition, no major junior high school research to date has studied differences in dogmatism-tenure status interaction which might explain the degree of

52 Bienenstok and Sayres, Op. Cit., p. 57.

53 Eichholz and Rogers, Op. Cit., p. 314.

innovativeness of the teachers in junior high schools.

If junior high schools are to become more receptive to educational innovation for the purpose of improving education, a discussion of the process of change cannot preclude an analysis of the relationship between personal and social factors of teachers and innovativeness within a school system.

Based on this premise, the sample, for the present study was taken from junior high schools in one large urban school system. Holdaway and Seger have used a similar approach in their study:

By restricting the study to one school system, the possibility of introducing differing official expectations for the principals was reduced. Further, a new practice in one school system may not have been a new practice in another system.⁵⁴

B. Junior High School Teachers

Several considerations contributed to the decision to focus on characteristics of the junior high school teacher

⁵⁴ E.A. Holdaway and J.E. Seger, "Change and the Principal", The Canadian Administrator, Vol. 6, No. 4, January 1967, p. 14.

as the unit of analysis in the present study. First, most of the research has tended to focus on school systems or schools as the unit of analysis in the process of educational change. Consequently, Wiens⁵⁵ suggests there is need to focus on the teacher as the unit of analysis in order to provide some balance in the literature.

Secondly, another consideration has been postulated by theorists that the emphasis on external influences can be seriously challenged on theoretical grounds.⁵⁶ Another consideration is posed by Eichholz and Rogers: "When the school or the school system is used as a unit of analysis, much of the individual variation in innovativeness and other variables is cancelled."⁵⁷

Accepting the theoretical rationale that in any institutional setting, the closed-minded individual is likely to be more resistive toward educational innovation than his open-minded counterpart, it can also be theorized

55 Wiens, "Change and the Classroom Teacher", p. 13-16.

56 Matthew B. Miles, "Planned Change and Organizational Health: Figure Ground", in Carlson (ed.), Op. Cit., p. 11-36.

57 Eichholz and Rogers, Op. Cit., p. 314.

that certain organizational controls such as tenure status within a school system are likely to effect the closed-minded teachers, but may have relatively little influence on open-minded teachers.

The sample for the present study was taken from a large urban school where junior high school teachers are classified as tenured and non-tenured teachers. In addition, the teachers were also classified for research purposes as open-minded and closed-minded, based on the concept of dogmatism. As a consequence, the present study accepts the individual teacher as the appropriate unit of analysis by focusing on the teacher's tenure status, dogmatism, and receptivity toward educational innovation as important conceptual variables in the investigation of educational change.

The theory dealing with institutional effects as influences on behavior, and the extent to which individuals are open or closed-minded, has also been developed by Rokeach. In this regard, Rokeach posits that an individual's belief system is jointly influenced by situational conditions interacting with personality. He states:

Our research program proceeded on the assumption that while a person's belief-disbelief system is a relatively enduring structure, the extent to which it influences behavior, and the extent to which it is open or closed at any particular moment, is jointly influenced by situational conditions interacting with personality.

A person's belief-disbelief system is never totally activated or engaged at any one time. Each situation, according to its structure and according to the motivational forces it gives rise to, activates only certain beliefs relevant to that situation.⁵⁸

Another important characteristic of Rokeach's theory is that dogmatism can be related to a wide variety of situations. This arises because the main concern of the theory is with the structure rather than the content of beliefs. In this regard, Rokeach states:

...The relative openness or closedness of a mind cuts across specific content; that is, it is not uniquely restricted to any one particular ideology, or religion, or philosophy, or scientific viewpoint. A person may adhere to communism, existentialism, Freudianism, or the 'new conservatism' in a relatively open or in a relatively closed manner. Thus, a basic requirement is that the concepts to be employed in the description of belief systems must not be tied to any one particular belief system; they must be constructed to apply equally to all belief systems.⁵⁹

58 Rokeach, The Open and Closed Mind, p. 402.

59 Ibid., p. 6.

Dogmatism theory has also been utilized in investigations within various institutional settings.^{60,61,62} For example, Vidulich and Kaiman⁶³ examined the effects of information source status and dogmatism upon the conformity of students at Louisiana State University. Data reported from this study supported the researchers' contention that conformity is a function of both status and the authoritarian tendencies of the closed-minded individual being influenced.

Closely allied to resistance toward new ideas is the characteristic of the closed-minded individual to view the world as threatening. This tendency makes him dependent upon institutional authority. The more closed the system, the more ideas will be evaluated according to the authorities who suggest, or who are suggested by them, since closed-minded persons are more suggestible to the authority-based norms

60 Verling C. Trolldahl, The Communication of Horticultural Information and Influence in a Suburban Community, Report No. 10, Communications Research Center, Boston University, Boston, Massachusetts, March 1963, p. 91.

61 Rokeach, The Open and Closed Mind, xv-447 p.

62 Milton Rokeach, The Three Christs of Ypsilanti, New York, Random House, 1964, ix-334 p.

63 Robert N. Vidulich and I.P. Kaiman, "The Effects of Information Source Status and Dogmatism Upon Conformity Behavior", Journal of Abnormal and Social Psychology, Vol. 63, No. 3, November 1961, p. 636-642.

of behavior.

From Rokeach's theory, it is postulated that differences exist in the perceptions of open and closed-minded persons toward organizational controls such as tenure status within a school system, with the closed-minded perceiving them as more important. Commenting on the kind of relationship that would most likely exist between organizational controls and the junior high school teacher, Anderson suggests that:

Individual differences in personality and temperament are also important in determining whether anxiety or security will result from subjection to formal authority.⁶⁴

Accepting Anderson's rationale, which suggests that in a school system, individual differences exist in perceptions toward organizational controls, it can be theorized that tenure status within a school system may influence the receptivity of closed-minded teachers toward educational innovation, but has relatively little influence on open-minded teachers.

In conclusion, the literature reviewed in this section of the chapter contains the general theoretical

64 Anderson, Bureaucracy in Education, p. 120.

rationale for selecting the predictor variables used in the present study. The next section will focus on the specific rationale for the hypotheses of the study.

5. Specific Rationale for the Hypotheses

Certain information should be kept in mind as the reader considers the remaining sections of the study. It should be noted that a high score on the Educational Innovation Attitude Scale indicates low receptivity towards educational innovation. Therefore, the dependent variable was labeled "resistance to educational innovation." The label "closed-mindedness" comes from the method for scoring the twenty-item Dogmatism Scale. A high score on the Dogmatism Scale indicates a closed-minded belief system. The other dependent variable is called "tenure status", as a result of coding applied to the data. A junior high school teacher classified as non-tenured received a score of one, and a junior high teacher with tenure was assigned a score of two.

The theoretical assumptions and research findings discussed in the preceding sections led to the development of the following three general hypotheses (GH) and their accompanying empirical hypotheses (EH):

GH 1: There is an inverse relationship between dogmatism and receptivity toward educational innovation.

EH 1a: Resistance to educational innovation by junior high school teachers is significantly related to closed-mindedness.

GH 2: There is an inverse relationship between tenure status and receptivity toward educational innovation.

EH 2a: Resistance to educational innovation by junior high school teachers is significantly related to tenure.

GH 3: There is an interaction effect between tenure status and dogmatism when the criterion is receptivity toward educational innovation.

EH 3a: Tenure status in a school system influences the resistance to educational innovation of

closed-minded teachers, but has relatively little influence on open-minded teachers.

The above hypotheses were tested in the null-form.

To recapitulate, Rogers' theoretical approach was followed in the selection of the variables used in the above hypotheses.

The first hypothesis, focusing on the relationship between dogmatism and resistance to educational innovation, rests on assumptions in the belief system theory concerning differential characteristics of open-minded and closed-minded individuals. The assumptions of the belief theory established that closed-minded individuals systematically restrict and distort their perceptions to new ideas. In addition, the open-minded person, more openly exposed to all kinds and sources of information, would likely develop a more receptive attitude toward new ideas, an assumption that is supported by findings in diffusion research. More likely to reach decisions through rational and intelligent means, the open-minded teacher would be in a better position to

consider the arguments for new educational practices. Conversely, the closed-minded person tends to reject a new educational practice, however meritorious, if it does not conform to his well-established ways of doing things or to the recommendations of his positive authority figure.

Anderson's description of tenure status as an indicator of goal displacement within a school system was considered an important predictor of innovative behavior. Viewed in this light, hypothesis two proposes that tenured teachers will be more resistive toward educational innovation than their non-tenured counterparts.

The third hypothesis of the study focuses on the interaction of tenure and dogmatism on receptivity toward educational innovation. The predictor variables of dogmatism and tenure were selected as independent variables based on theoretical grounds. The third hypothesis attempts to establish whether or not the effect of these two variables is independent.

However, there may be hidden problems in positing outright the independent relationships between each variable

and receptivity toward educational innovation. It is possible that the influence of institutional authority, such as tenure status within a school system, may have a more conforming effect on the motivation of the closed-minded teacher to consider educational innovation than on his open-minded counterpart. Anderson⁶⁵ proposes that tenure status of junior high school teachers influences their attitudes toward educational innovation. In a different context, Presthus⁶⁶ proposes a similar kind of relationship when he points out that organizations can be defined as relatively permanent authority systems, with the most critical factor of the relationship being the degree of an individual's accommodation to organizational authority. In his work, each individual establishes his pattern of behavior to authority within an organization. Moreover,

65 Anderson, Op. Cit., p. 118-147.

66 Robert Presthus, The Organizational Society, New York, Knopf, 1962, p. 1-36.

March and Simon⁶⁷ have emphasized that the authority relationship within organizations is a powerful influence on an individual's perceptions and attitudes toward change.

Thus it seems that the relationship of the individual to authority is basic to the concept of dogmatism. The closed-minded individual and the open-minded individual have different ideas about the nature of authority. The open-minded individual's reliance on authority, such as tenure status within a school system, is rational, objective, and tentative. He can act independently of the authority's influence of tenure status. In contrast, the closed-minded person has an arbitrary and absolute reliance on authority. Because of the authority influence of tenure status, he does not act independently. For the above reasons, the influence of tenure status on a teacher's receptivity toward educational innovation will be investigated in hypothesis three as a form of authority influence upon closed-minded teachers.

In summary, the literature which has been reviewed in the previous sections of this chapter contains the general

67 James G. March and Herbert A. Simon, Organizations, New York, John Wiley, 1967, p. 90-201.

theoretical and empirical rationale for the present study. Research studies which offer relevant information bearing on the design of the study have been reviewed. The review indicates that one of the significant variables in the process of change is the personality variable of open and closed-mindedness as described by Rokeach. In addition, the review of studies on educational innovation indicated that tenure status was another key variable associated with innovativeness.

Some researchers, such as Jamias, Ramer, and Kerel-ejza have reported a negative association between closed-mindedness and measures of innovativeness. Others, like Marion and Holmes, have failed to find any significant relationship between dogmatism and innovation measures. Still other researchers, like Childs, have reported mixed results. Anderson has also tried to relate the tenure status of teachers to attitudes toward innovation. Specifically, he has reported a significant positive relationship between the tenure status of junior high school teachers and their resistance to educational innovation. However, there is no direct evidence on the hypothetical difference between the way open and closed minds perceived educational inno-

vation, when an interaction between dogmatism and tenure status of junior high school teachers was taken into account. A portion of this study has been designed to determine the nature of this relationship.

The purpose of the review was to focus on selected studies relevant to the formulation of a sound theoretical framework for the present research, and to establish the specific rationale for developing the hypotheses of the study. The preceding empirical findings reported in the review indicate that innovation has been investigated from such vantage points as dogmatism and tenure status. Therefore, this study is an attempt to examine receptivity toward educational innovation from the point of view of junior high school teachers, considering variables such as open and closed-mindedness, and tenure and non-tenure status.

This study is meant to extend the utility of certain assumptions within Rogers' approach to predicting innovativeness of an individual within a social system, Rokeach's theory of dogmatism, and Anderson's concept of tenure status. Rogers' approach provided the general framework for selecting variables for an analysis of innovative behavior.

The theory of dogmatism propounded by Rokeach was also assayed to account for some regularly observed phenomena in connection with receptivity or resistance toward innovation. In addition, Anderson's theory of bureaucracy in education was assayed in connection with tenure status and resistance of junior high school teachers toward educational innovation. Specifically, a field study was conducted to test certain implications of the personality construct of dogmatism and tenure status with respect to receptivity toward educational innovation.

The study has a three-fold significance. First, the study provides a means of obtaining a more complete understanding of past observations in educational diffusion research. Second, since there has been a paucity of research on the classroom teacher as the unit of analysis, the establishment of a relationship between dogmatism, tenure, and receptivity toward educational innovation of junior high school teachers in a school system presents several new implications. In this connection, these variables were selected on theoretical grounds and may be integrated into a general system theory which would generate information concerning the resistance or receptivity toward

innovation of certain teachers within a school system. If junior high schools are to design innovations for improving excellence in education, a discussion of innovativeness cannot preclude an analysis of the relationship between personal and social factors of teachers. Third, insight gained about dogmatism theory can lead to more fruitful studies on the theory.

In concluding this section of the chapter, it seems appropriate to mention that most of the literature reviewed was chosen from articles and books based on the results of research in various traditions of diffusion research. It has been pointed out that articles on innovation are abundant in current diffusion literature. However, research projects focusing on the individual teacher as the unit of analysis have, for the most part, been confined to only a few studies. Based on the apparent need for more research related to the classroom teacher and innovativeness, the following problem areas were developed in the present study. A general description of the purpose of the present study, the limitations of the study, and a statement of the problem areas follow.

The conceptual variables included in the problem areas of the present study were selected as a priori variables based on theoretical grounds. Moreover, it is assumed that these conceptual variables will assist educational practitioners in developing a better understanding of the role of the classroom teacher in affecting educational change.

Stated in general terms, the purpose of the present study is to investigate the perceptions of certain teachers, grade 7 - grade 9, toward educational innovation; to determine the relationship between resistance to educational innovation and the degree, as measured, to which the teachers possess the characteristics of open or closed-mindedness; and to relate resistance to educational innovation to the tenure status of the teachers. The design for the study is limited to the following factors.

1. The population studied consists of junior high school teachers of grades 7-9 in one urban public school system in New York State.
2. The study is concerned only with the reported beliefs of junior high teachers toward educational innovation. It is not concerned with operative innovations.

3. The study is concerned only with dogmatism and tenure status as related to resistance to educational innovation.

Formally, the problem may be stated in the form of a question: Do dogmatism and tenure status of junior high school teachers influence their attitudes toward educational innovation? The following chapter presents the experimental design developed to examine the above problem and the hypotheses of the study.

CHAPTER II

EXPERIMENTAL DESIGN

This chapter consists of four sections, and outlines the experimental design of the study. The first section describes the sample. Section two provides the definitions of the variables under investigation and describes the instruments used to collect the data. Section three explains the distribution procedures used in the study. The final section presents the procedures used for the statistical testing of the hypotheses.

1. The Sample

The population of interest consists of the teaching staff of the public junior high schools in a large metropolitan school district in New York State. These schools are all governed by the regulations of the New York State Education Department and are supervised and administered by the policies of the school district.

For purposes of this study the fundamental criterion of representativeness was that the sample be reasonably

divided between tenured and non-tenured junior high school teachers. Another factor in the decision to sample both tenured and non-tenured junior high school teachers was a study by Anderson¹, who found that there was a significant difference between tenured and non-tenured junior high school teachers regarding their resistance toward educational innovation. In addition, substitute and itinerant teachers were excluded from the study in an attempt to control factors which might have influenced the results of the study. Therefore, only full-time certified teachers were included in the sample population.

Of the 393 full-time junior high school teachers that received questionnaires, 321 volunteered to complete the questionnaires. The responses of 302 junior high school teachers were used as a total sample in this study. (The remaining 19 responses lacked sufficient completeness to be included.) The teachers responding to the questionnaires did so voluntarily and with total anonymity; these provisions were required by the school district granting permission for the study, and were responsible for the less than maximum

1 James G. Anderson, Bureaucracy in Education, Baltimore, Johns Hopkins Press, 1968, xxi-217 p.

response, since a direct check on the return of individual questionnaires was precluded (in order to encourage frank responses and guarantee anonymity, teachers were asked to return the completed questionnaires unsigned). However, enough questionnaires were distributed to provide an acceptable overall sample after allowance had been made for anticipated non-returns.

The 302 respondents in the questionnaire sample did, in fact, comprise an almost equal distribution of tenured and non-tenured teachers. Table I presents the tenure status breakdown of the junior high school teachers in the questionnaire sample.

In a later phase of the study the distribution of Dogmatism Scale scores for the sample of junior high school teachers was checked and revealed that the distribution of scores was symmetrical. A discussion of this consequence is delayed until the next chapter.

The average age of the junior high school teachers in the present study is 32.1 years. Table II shows that 32.45 percent of the teachers are between twenty-five and twenty-nine years of age. The data also indicate that 59.27 percent of the total group of junior high school teachers are

below thirty years of age. A survey of junior high school teachers in New York State² reported that the under-thirty group was the largest group among the teachers in that sample.

Table III shows that 47.32 percent of the junior high school teachers included in the present study have been teaching for fewer than five years. The survey of junior high school teachers in New York State mentioned just above also reports that 50 percent of the junior high school teachers have been teaching for fewer than six years, which is close to the percentage reported in the present study.

2. Definitions and Description of Instruments

A. Definitions

(i) Innovation

Innovation, as defined in this study, refers to a deliberate, novel, specific change thought to be efficacious by a junior high school teacher. This definition is similar

2 Theodore Bienenstok and William Sayres, Problems in Job Satisfaction Among Junior High School Teachers, Albany, N.Y., State Education Department (Division of Research), June 1963, p. 5-9.

TABLE I.-

Tenure Status Breakdown of the Population of Junior High School Teachers Completing the Questionnaires.

Tenure Status	Number	Percent
Non-Tenured	154	50.99
Tenured	148	49.01
Total	302	100.00

TABLE II.-
Distribution of Teachers by Age.

Age	Number	Percent
20-24	81	26.82
25-29	98	32.45
30-34	33	10.93
35-39	23	7.62
40-44	21	6.95
45-49	15	4.97
50-54	10	3.31
55-59	9	2.98
60-64	12	3.97
Total	302	100.00

TABLE III.-
Distribution of Teachers by Years of Teaching Experience.^a

Years	Number	Percent
1	44	14.57
2	32	10.59
3	41	13.58
4	26	8.61
5-9	79	26.16
10-14	44	14.57
15-19	23	7.61
20 or more	13	4.30
Total	302	99.99*

* Slight deviation from 100 percent in computed percentage total is due to rounding off.

^a Indicates years of teaching experience both within and outside the school system.

to both Miles'³ and Ramer's⁴ definitions of innovation.

Ramer, in developing the Educational Innovation Attitude Scale, defined receptivity toward educational innovation as the degree to which an idea is considered desirable or undesirable. He suggested that educational innovation is perceived in varying degrees of desirability, and that it is possible to measure the degree of desirability. In addition, he emphasized that an individual's attitude toward educational innovation could be placed on a continuum of receptiveness ranging from low receptivity to high receptivity. In this study the extent of an individual's receptiveness to educational innovation is represented by the responses of junior high school teachers on the Educational Innovation Attitude Scale.

(ii) Dogmatism

Dogmatism is treated in this study as a personality variable based on the theory of belief systems developed by

3 Matthew B. Miles, "Educational Innovation: The Nature of the Problem", in Matthew B. Miles (ed.), Innovation in Education, New York, Teachers College, Columbia University, 1964, p. 14.

4 Burton Ramer, The Relationship of Belief Systems and Personal Characteristics of Chief School Administrators and Attitudes Toward Educational Innovation, unpublished doctoral thesis, presented to (Department of Educational Administration), State University of New York at Buffalo, 1967, p. 9.

Rokeach,⁵ according to whose theory all individuals possess belief systems. Those having relatively open systems are referred to as open-minded or low dogmatic individuals whereas those having closed systems are defined as high dogmatic or closed-minded.

The degree of dogmatism, as defined in this study, refers to a score each junior high school teacher obtains on the twenty-item Dogmatism Scale.

(iii) Tenure Status

In this study, tenure status refers to the classification of junior high school teachers into two categories as defined by the school district and the State Department of Education. In the first category are teachers who have taught for at least three years in the school system. They are considered to have demonstrated professional competence, and therefore have been granted tenure. In the second category are non-tenured teachers, those who have taught in the school system for less than three years. The school system considers them as on probation for a three-year period.

5 Milton Rokeach, The Open and Closed Mind, New York, Basic Books, 1960, xv-447 p.

The rationale for the inclusion of the tenure status categorization is based on Anderson's study⁶ which indicated that tenured junior high school teachers were less receptive toward educational innovation than non-tenured junior high school teachers in a large urban school system.

(iv) Teaching Experience

Teaching experience refers to total years of experience both within and outside the school system.

(v) Junior High School Teachers

Junior high teachers were defined as full-time teachers of grades 7 through 9 in the school system. This categorization is consistent with the classification process found in the State for identifying a teacher as a junior high school teacher within a public school system.

B. Description of the Instruments

The measuring instruments used in this study were the Educational Innovation Attitude Scale (E.I.A.S.), which was developed by Ramer⁷ in 1967 to measure professed attitudes

6 Anderson, Op. Cit., xxi-217 p.

7 Ramer, Op. Cit., p. 76-77.

toward educational innovation, and a twenty-item Dogmatism Scale, which assesses closed and open-mindedness. A Personal Data Form was designed to acquire personal information about the respondents regarding age, years of teaching experience, and tenure status.

(i) Scoring Procedure

The E.I.A.S. contains twenty items which were answered on an agree-disagree continuum. The responses of the teachers were scored in terms of the method of summated ratings with weights of 1 through 7 being assigned to the six response categories, and 4 excluded to force respondents toward disagreement or agreement. For each teacher, a total score was obtained on the basis of responses to all of the items. A high score identifies a teacher who is not receptive to educational innovation. The highest score possible was 140, indicating a highly resistive attitude toward educational innovation.

(ii) Validity

In the construction of the Educational Innovation Attitude Scale, Ramer utilized validity criteria appropriate to the purposes for which the scale was developed. The validity criteria selected by Ramer are consistent with

validation approaches suggested by Edwards⁸ and Jahoda et al.⁹

Jahoda et al.¹⁰ define validity as the degree to which a measurement achieves a particular objective. Since scales are used for different purposes, somewhat different types of validation are involved depending upon the purpose of the scale.

Face validity was achieved by submitting items that uniformly covered four broad areas of educational innovation -- curriculum, physical, operational, and personnel-- as a possible composite measurement of educational innovation, to a panel of judges consisting of personnel from the Department of Educational Administration of Syracuse University and the Department of Educational Administration of the University of Rochester. After consultation and examination of the items it was agreed that forty items met the criteria to compositely measure educational

8 Allen L. Edwards, Techniques of Attitude Scale Construction, New York, Appleton-Century-Crofts, Inc., 1957, p. 153-159.

9 Marie Jahoda et al., Research Methods in Social Relations, New York, Dryden, 1951, Part One, p. 108-117.

10 Ibid., p. 108-117.

innovation. A pilot scale consisting of the forty items was administered to a sample of educators selected by the panel of judges as innovators and non-innovators. The results were subjected to a t-test to determine if each item discriminated significantly at the .05 level or higher. As a result of this procedure nineteen items were deleted. The remaining twenty-one items discriminated significantly at the .05 level or higher. This procedure is consistent with Edwards' criteria for justifying the validity of a scale:

In the method of summated-ratings, what is desired is a set of 20 to 25 statements that will differentiate between the high and low groups. These statements can be selected by finding the t value for each statement and then arranging the statements in rank order according to their t values.¹¹

As a result of this procedure, twenty-one items were statistically significant, with fourteen questions discriminating at the .01 level or higher. The final scale consisted of twenty items¹² -- the five most significant of each category of educational innovation.

11 Edwards, Op. Cit., p. 153-154.

12 Items appear in Appendix 3.

Finally, this led Ramer to conclude that "this insured a composite measurement of educational innovation".¹³ A categorizing of the questions into the four areas of educational innovation used in the pilot study appears in Table IV. The t-scores reported by Ramer for the items are shown in Table V.

Additional validity for the Educational Innovation Attitude Scale is derived from the hypothesized relationship reported by Ramer¹⁴ in his thesis. Cronbach¹⁵ suggests that there are three parts to construct validation: suggesting what constructs possibly account for test responses; deriving hypotheses from the theory involving the construct; and testing the hypotheses empirically.

Thus the formulation and support of the following empirical hypotheses, each of which was derived from Ramer's theoretical rationale, also test the validity of the scale.

1. The correlation between resistance to educational innovation and age will be positive

13 Ramer, Op. Cit., p. 36.

14 Ibid., p. 43-65.

15 Lee J. Cronbach, Essentials of Psychological Testing, New York, Harper and Row, 1960, p. 121.

TABLE IV.-

A Categorizing of the Questions Into Four Areas of Educational Innovation Used in the Pilot Scale.^a

Curriculum	Physical	Operational	Personnel
3	1	10	9
4	2	11	12
5	6	18	14
8	7	22	16
17	13	23	20
30	15	24	21
33	19	26	25
35	32	27	29
37	36	28	41
38	43	31	44
39	46	34	45
40	48	42	47

a Burton Ramer, The Relationship of Belief Systems and Personal Characteristics of Chief Social Administrators and Attitudes Toward Educational Innovation, unpublished doctoral thesis, presented to (Department of Educational Administration), State University of New York at Buffalo, 1967, p. 35.

Table V.-
The t-Scores of the Forty-Eight Questions
Comprising the Pilot Scale.^a

Questions	t-Score	Questions	t-Score
** 1	10.0	** 25	3.64
2	.372	26	.879
3	1.35	** 27	8.44
4	.561	28	.112
** 5	3.10	29	1.92
6	.092	30	.652
* 7	2.50	31	.252
** 8	2.99	* 32	2.19
9	1.33	33	1.87
10	1.50	34	1.52
** 11	2.65	** 35	3.20
** 12	2.62	36	000
* 13	2.00	* 37	2.40
14	1.31	38	.310
15	.889	39	.152
** 16	2.80	40	.166
** 17	9.75	41	1.68
* 18	2.23	* 42	2.33
19	.800	43	1.95
20	.800	** 44	3.25
21	.166	** 45	2.80
22	.652	** 46	3.03
23	.444	* 47	2.42
** 24	2.95	48	000

* $p \leq .05$.

** $p \leq .01$.

a Burton Ramer, The Relationship of Belief Systems and Attitudes Toward Educational Innovation, unpublished doctoral thesis, presented to (Department of Educational Administration), State University of New York at Buffalo, 1967, p. 37.

and significant.

2. The correlation between resistance to educational innovation and dogmatism (closed-mindedness) will be positive and significant.
3. The correlation between resistance to educational innovation and expenditure per pupil will be negative and significant.

The findings reveal significant positive correlations between both dogmatism and age and resistance to educational innovation scores. The findings also reveal a significant negative correlation between resistance to educational innovation and expenditure per pupil. The results of Ramer's findings are reported in Table VI. The variables of age, dogmatism and expenditure per pupil have been reported as consistent indicators of resistance to innovation.

(iii) Reliability

Jahoda et al.¹⁶ explain that reliability is the consistency with which a measure gives stable values for individuals and is free from random error. Cronbach¹⁷

16 Jahoda et al., Op. Cit., p. 100-107.

17 Cronbach, Op. Cit., p. 130-141.

Table VI.-

Correlation Between "Resistance to Educational Innovation Measure", and the Variables of Age, Closed-Mindedness and Expenditure per Pupil.
(N=78)^a

Variables	Correlations
Closed-Mindedness	.466 **
Age	.289 **
Expenditure per Pupil	-.266 *

* $p < .05$.

** $p < .01$.

a Burton Ramer, The Relationship of Belief Systems and Attitudes Toward Educational Innovation, unpublished doctoral thesis, presented to (Department of Educational Administration), State University of New York at Buffalo, 1967, p. 50.

suggests the split-half method for estimating the reliability of a test on the basis of the homogeneity of the items in it. In addition he suggests the use of the retest-method for establishing a coefficient of stability.

Reliability of the Educational Innovation Attitude Scale was established by the test-retest method. Ramer administered the scale to a graduate education class with thirty-five days between tests. The coefficient of test-retest stability computed from these scores was $r = .81$. In a pilot study for this thesis, a second reliability coefficient of .83 was obtained from a sample of twenty junior high school teachers not included in the main sample of the study by a test-retest with a two-week interval between tests. In a second phase of the pilot work related to the present thesis, a second reliability study was conducted with a sample of thirty-four junior high school teachers for estimating the reliability of the scale on the basis of the homogeneity of the items on the scale. The corrected split-half coefficient of reliability computed from these scores is .79.

In summary, from the information available there is sufficient evidence to support the contention that the

Educational Innovation Attitude Scale constitutes a relevant, valid, reliable and composite measuring instrument of educational innovation. Therefore, the scale represents a current and systematic attempt to insure a composite measurement of educational innovation.

Secondly, the scale is recommended for use with a population of teachers.¹⁸ The pilot studies associated with this thesis ascertained from junior high school teachers that the items on the scale were clear, and that there were no reasons indicated by the teachers that necessitated any changes in the format of the scale. Finally, the scale has demonstrated its usefulness as a research instrument in Ramer's study which utilized a sample of seventy-nine educators in New York State. The items comprising the E.I.A.S. appear in Table VII. The scale appears in Appendix 3.

The Dogmatism Scale was developed by Rokeach¹⁹ to measure the extent to which belief systems are open or closed. The basic assumption was that if an individual's belief system is at one extreme (open-mindedness

18 Ramer, Op. Cit., p. 66.

19 Rokeach, Op. Cit., p. 71-98.

Table VII.-

Questions Comprising the Educational
Innovation Attitude Scale.^a

Curriculum	Physical	Operational	Personnel
5	1	11	12
8	7	18	16
17	13	24	25
35	32	27	44
37	46	42	45

a Burton Ramer, The Relationship of Belief Systems and Attitudes Toward Educational Innovation, unpublished doctoral thesis, presented to (Department of Educational Administration), State University of New York at Buffalo, 1967, p. 38.

or closed-mindedness), this will affect the extent to which he perceives new ideas and his receptivity or resistance toward such ideas. In 1962 Schulze²⁰ proposed a ten-item short form of the scale which he developed from the responses of college students. Subsequently, in 1965, Troidahl and Powell²¹ experimented with short forms of the scale, using as respondents persons more representative of the general population than was Schulze's sample of college students. They concluded that a twenty-item scale which they developed was a good predictor of the results that would be obtained by using the original scale developed by Rokeach. In the present study the twenty-item short form of the Dogmatism Scale (D. Scale) was employed.

(i) Scoring Procedure

The twenty-item form of the Dogmatism Scale contains items which were answered on an agree-disagree

20 Rolfe H. Schulze, "A Shortened Version of the Rokeach Dogmatism Scale", Journal of Psychological Studies, Vol. 13, 1962, p. 93-97; quoted from Verling C. Troidahl and Fredric A. Powell, "A Short-Form Dogmatism Scale for Use in Field Studies", Social Forces, Vol. 44, No. 2, December 1965, p. 211.

21 Verling C. Troidahl and Fredric A. Powell, "A Short-Form Dogmatism Scale for Use in Field Studies", Social Forces, Vol. 44, No. 2, December 1965, p. 211-215.

continuum. The scoring range of each item is one to seven with four omitted, and the range of the total test is from 20 to 140. A high score identifies a close-minded or dogmatic person.

(ii) Validity

In preparing the forty-item scale, Rokeach analyzed the defining characteristics of closed and open systems and prepared statements which would measure these characteristics, rather than measure the content of specific ideologies. The basic assumption Rokeach proposed was that if a person strongly agreed with a statement, he possessed one extreme of the characteristic of the general belief system being measured (closed and open-mindedness) and if he strongly disagreed, he possessed the opposite extreme.

Rokeach²² conducted extensive research aimed at testing his theory and the validity of his scale, using a variety of approaches: method-of-known groups, differences in problem-solving behavior, and the relationship between dogmatism and the acceptance of new and unconventional music. In addition, behavioral validation of the

22 Rokeach, Op. Cit., p. 71-98.

Dogmatism Scale was borne out in Korn and Giddan's²³ research study related to dogmatism, flexibility, security, and tolerance, and by Vidulich and Kaiman's²⁴ study related to dogmatism and information sources.

In order to develop a short form of the scale, Troldahl and Powell administered the forty-item scale to 227 subjects in Boston, Massachusetts, representing a general-population sample. The homogeneity of the scale was analyzed by computing a Spearman-Brown split-half reliability coefficient from the response measures of 227 respondents. The data indicated that the forty-item split-half reliability coefficient is .84. This is comparable with the range of reliability coefficients (.68 to .93) reported by Rokeach. According to Troldahl and Powell, a homogeneity index for each item was obtained by correlating the respondents' scores in each item with

23 Harold A. Korn and Norman S. Giddan, "Scoring Methods and Construct Validity of the Dogmatism Scale", Educational and Psychological Measurement, Vol. 24, No. 4, Winter 1964, p. 867-874.

24 Robert N. Vidulich and Ivan P. Kaiman, "The Effects of Information Source Status and Dogmatism upon Conformity Behavior", Journal of Abnormal and Social Psychology, Vol. 63, No. 3, November 1961, p. 639-642.

their total dogmatism score. From this analysis a twenty-item scale was developed by picking the twenty items with the highest item-total score correlations. Data based on this analysis produced a correlation of .95 between the twenty-item scale and the forty-item scale.

The predictiveness of the twenty-item short form was checked with an independent quota-control sample of eighty-four subjects in Lansing, Michigan. According to the findings, the twenty-item short form is a good predictor of what one would obtain using the forty-item scale. In cross-validating the 20-item scale, the data produced a correlation of .94 between the twenty-item scale and the forty-item version.

(iii) Reliability

As reported by Rokeach,²⁵ the forty-item Dogmatism Scale yielded reliability coefficients of .68 to .93 for samples tested at Michigan State University, Ohio State University and at a New York Veteran's Administration.

The twenty-item scale developed by Troidahl and Powell²⁶ was proposed to be a good predictor of the results

25 Rokeach, Op. Cit., p. 89-90.

26 Troidahl and Powell, Op. Cit., p. 211-215.

that would be obtained using the forty-item scale. The split-half reliability coefficient of the twenty-item scale was .79. The twenty-item short form of the D. Scale was used in the present study. The D. Scale was selected as a research instrument in the study because the basic assumption in Rokeach's theory suggested that low dogmatics would be more receptive toward innovations.

A second reason for the selection of the D. Scale is that it is based on Rokeach's personality theory which ranged over a complete spectrum of beliefs incorporated into an individual's cognitive system. In effect, knowledge about the organization of an individual's beliefs should enable predictions to be made about the individual's behavior.

In addition to the D. Scale and the E.I.A.S., a short Personal Data Form was employed. It consists of questions which were intended to elicit personal information about the respondents. The items contained in the instruments were checked for clarity with the samples of junior high school teachers participating in the pilot studies connected with this thesis.

3. Collection of Data

Permission to conduct the study was obtained from the Superintendent of Schools. The first step in the collection of data was to elicit the cooperation of the principals of each of the nine junior high schools in the school system. All of the principals responded positively. However, they expressed their concern that the questionnaires be distributed in a voluntary fashion, and that teachers not be required to identify themselves.

The teachers were informed that they were participating in a study relevant to a doctoral dissertation. A copy of the cover letter appears in Appendix 2. In accordance with the school system's policy, in no case were teachers required to identify themselves. The teachers were asked only to complete the questionnaire on their own, place it in a return envelope, seal it to guarantee anonymity, and to return it to the assigned professional staff member in each school. The investigator then picked up the returns.

As indicated previously, various measures were used in this study. The twenty-item Dogmatism Scale was used

to evaluate the respondents' degree of open and closed-mindedness. Dogmatism was measured by the respondents' answers to the twenty-item scale with total item scores from 20 to 140. A high score indicated a high degree of dogmatism or closed-mindedness.

It was necessary then to divide the total sample of junior high school teachers into open-minded and closed-minded teachers. Since open and closed belief systems are ideal types, convenient for purposes of research, no people exist who are completely open or completely closed. Normative data provided by Rokeach were used by Childs²⁷ to examine the twenty-item Dogmatism Scale scores of teachers and administrators. Childs reports a mean of 63.92 and a median of 63.13 in the educator population he studied. The mean and median were nearly identical and fell within the same class interval. He concluded from his observation that dogmatism scores in

27 John W. Childs, A Study of the Belief Systems of Administrators and Teachers in Innovative and Non-Innovative School Districts, unpublished doctoral thesis presented to (Department of Education Administration), Michigan State University, East Lansing, 1965, vii-124 p.

his educator population were for all practical purposes considered normal and similar to those found by Rokeach.

Since the distribution of Dogmatism Scale scores was not known in the present study until data were gathered, the following method of dividing teachers' scores on the dogmatism variable was used. The sample of 302 teachers was divided into two equal parts with the lower one-half of the scores representing open-minded and the higher one-half representing the closed-minded. This approach has also been used by researchers who have worked with various versions of the Dogmatism Scale.^{28,29}

Table VIII provides the distribution of respondents' dogmatism scores. This distribution of scores is similar to distributions reported by previous studies using the Dogmatism Scale. In addition, a histogram of the dogmatism

28 John C. Croft, Open and Closed Mindedness and Perceptions of Leader Behavior, Cooperative Research Project No. S-- 045, The Pennsylvania State University, University Park, 1964, vi-97 p.

29 Juan F. Jamias, The Effects of Belief System Styles on the Communication and Adoption of Farm Practices, unpublished doctoral thesis presented to (Department of Communication), Michigan State University, East Lansing, 1965, i-118 p.

Table VIII.-
Distribution of Respondents' Dogmatism Scores.
(N=302)

Dogmatism Scores	Frequency	Percentage of Respondents
20-29	2	.7
30-39	17	5.6
40-49	39	12.9
50-59	83	27.5
60-69	77	25.5
70-79	53	17.5
80-89	26	8.6
90-99	5	1.7
Total	302	100.0

Mean = 61.18 S.D. = 14.01

scores showed a normal and symmetrical distribution.

Additionally, the teachers' tenure status responses on the Personal Data Form were classified as tenured and non-tenured. The Educational Innovation Attitude Scale was used to evaluate the respondents' degree of receptivity toward educational innovation. For each teacher, a total score was obtained, based upon his responses to all the items. The range of the scale is from 20 to 140. A high score on the scale indicates low receptivity towards educational innovation. Therefore, the dependent variable was labeled "resistance to educational innovation".

4. Analysis of the Data

An analysis of variance design for a two factor experiment using the technique of unweighted means modeled after Winer's³⁰ design was used for the statistical testing of hypotheses 1, 2, and 3.

The two factors of interest were open and closed-mindedness, as measured by the twenty-item Dogmatism Scale

30 B.J. Winer, Statistical Principles in Experimental Design, New York, McGraw-Hill, 1962, p. 402-449.

and tenure status, and each factor was varied in two ways. The tenure status variable was labeled the A factor with its two variations -- A_1 corresponding to tenure, and A_2 corresponding to non-tenure. Dogmatism was designated as the B factor with two variations -- B_1 corresponding to open-mindedness, and B_2 corresponding to closed-mindedness.

A given group or cell within this design was obtained by selecting one variation from each of the two factors. For example, A_1B_1 represented a cell consisting of tenured open-minded teachers. Since there were two factors of interest with two variations for each factor, the study was defined as a 2×2 factorial study. The $2 \times 2 = 4$ groups or cells are presented in Table IX according to tenure status and dogmatism.

In the computation of main effects and interactions each cell is considered to have $\bar{n}_h$ (harmonic mean of the number of observations per cell). Once the means are estimated the sums of squares have the same form as corresponding sums of squares for the design of equal cell frequencies. In effect, the computation of main effects and interaction effects considers each cell in the experiment as if it contained the same number $\bar{n}_h$ of observations.

In addition to the main-effects components of the between treatments sum of squares, interaction sums of squares were computed to determine the kinds of relationships which existed between the two factors included in the experimental design. For example the tenure status and dogmatism interaction sum of squares ($SS_{A \times B}$) was computed to determine whether the difference between the means A_1 and A_2 for the first level of B (B_1) were significantly different from the difference between the means of A_1 and A_2 for the second level of B (B_2). If the value of $SS_{A \times B}$ were exactly zero, then the difference between the means of A_1 and A_2 for B_1 would be exactly the same as the difference between the means of A_1 and A_2 for B_2 . If the value of $SS_{A \times B}$ resulted in a rejection of the hypothesis that there is no interaction between the A factor and B factor, then the difference between the means of A_1 and A_2 for B_1 was not equal to the difference between the means of A_1 and A_2 for B_2 .

Table IX.-

Designation of Groups According to
Tenure Status and Dogmatism.

Group	Tenure Status	Dogmatism
A ₁ B ₁	Tenure	Open-Mindedness
A ₁ B ₂	Tenure	Closed-Mindedness
A ₂ B ₁	Non-Tenure	Open-Mindedness
A ₂ B ₂	Non-Tenure	Closed-Mindedness

CHAPTER III

PRESENTATION AND DISCUSSION OF RESULTS

The purpose of this chapter is to report the results of the statistical test of the hypotheses described in Chapter II and to discuss these results in accordance with the empirical rationale and theoretical framework set forth in the study. This chapter is divided into four sections: Sections one through three present the statistical treatment and analysis of the data related to the three hypotheses. Section four presents further discussion and research.

1. Results of Testing Hypothesis 1

Hypothesis number one stated there was no significant difference between resistance to educational innovation scores as measured by the E.I.A.S. for open and closed-minded teachers. In order to test this hypothesis the resistance to educational innovation scores of open-minded teachers were compared with those of closed-minded teachers. This hypothesis was tested by a two-way

analysis of variance design. The statistical data presented in Table XI indicate a significant difference in resistance to educational innovation between open and closed-minded teachers. Table X indicates that the mean scores of closed-minded teachers on the criterion measure of resistance to educational innovation were higher than those of the open-minded teachers. This result was in the expected direction based on the theoretical rationale of the study.

A. Discussion of Results of Testing Hypothesis 1

In the null form, the first hypothesis stated that open-minded teachers did not differ significantly from closed-minded teachers on a measure of resistance to educational innovation. This hypothesis was rejected. The obtained result is consistent with the previous research by Ramer,¹

¹ Burton Ramer, The Relationship of Belief Systems and Personal Characteristics of Chief School Administrators and Attitudes Toward Educational Innovation, unpublished doctoral thesis presented to (Department of Educational Administration), State University of New York at Buffalo, 1967, v-94 p.

Table X.-

Means and Standard Deviations of Educational Innovation Attitude Scale Scores by Tenure Status and Dogmatism.

Dogmatism	Tenure Status	N	Mean	SD
Open-Minded	Tenure	72	49.54	9.90
Closed-Minded	Tenure	76	60.15	12.47
Combined: Open and Closed-Minded	Tenure	148	54.85	11.19
Open-Minded	Non-Tenure	79	46.84	11.23
Closed-Minded	Non-Tenure	75	56.69	12.65
Combined: Open and Closed-Minded	Non-Tenure	154	51.77	11.94
Open-Minded	Tenure and Non-Tenure	151	48.19	10.57
Closed-Minded	Tenure and Non-Tenure	151	58.42	12.56
Total Group	Tenure and Non-Tenure	302	53.31	11.57

Table XI.-

Analysis of Variance Results for Resistance to
Educational Innovation Among Tenure Status and Dogmatism.

Source of Variation	df	SS	MS	F
Tenure	1	9.48	9.48	5.28 *
Dogmatism	1	104.66	104.66	58.33 *
Tenure and Dogmatism	1	0.14	0.14	0.08
Within Subjects	298	534.70	1.79	

* $p < .05$.

Childs² and Kerelejza³ in the educational tradition, all of whom have established a significant positive relationship between measures of resistance to educational innovation and closed-mindedness.

If one accepts a central proposition of the organization of belief-systems that the cognitive system of closed-minded persons is resistant to innovation, then in making distinctions between open belief-systems and closed belief-systems, the finding is also consistent with previous research in other traditions which tends to support this proposition.⁴ Consequently, the theoretical rationale presented earlier will be looked into for possible enlightenment related to this finding.

According to Rokeach's theory, dogmatism is a personality variable which governs the individual's

2 John W. Childs, A Study of the Belief Systems of Administrators and Teachers in Innovative and Non-Innovative School Districts, unpublished doctoral thesis presented to (Department of Educational Administration), Michigan State University, East Lansing, 1965, vii-124 p.

3 Joan D. Kereljza, The Relationship of Closed and Open Mindedness to Factors That Selected Groups of Teachers Regard as Barriers to Curriculum Change, unpublished doctoral thesis presented to (Department of Education), The University of Connecticut, Storrs, viii-108 p.

4 Everett M. Rogers, Diffusion of Innovations, New York, The Free Press of Glencoe, 1962, p. 178.

receptivity to new ideas. If such is actually the case, it is logical to assume that closed-minded individuals would hold beliefs in different ways than would open-minded individuals. From Rokeach's theory it was hypothesized that there would be a difference in the attitudes of the open and closed-minded teachers toward educational innovations with the closed-minded teachers perceiving them as less desirable.

The underlying assumptions of this hypothesis were founded on the idea that the closed-minded person operates within a consistent pattern of belief congruence in the way that he incorporates or does not incorporate a new idea into the belief he already holds. The closed-minded person organizes the world in terms of what he already believes the world to be like. New ideas, innovations, or new situations are regarded in terms of their similarity to what he already believes. In addition, the sub-beliefs within the total belief structure of the dogmatic person are isolated from one another. This compartmentalization of belief causes the closed-minded individual to have greater difficulty than the open-minded person in integrating or synthesizing new ideas. The more closed-minded an

individual is, the more he venerates authority and the more he sees the world as a threatening and hostile place. New ideas are evaluated on the basis of their consistency with what the person believes that authorities will advocate. Therefore, it becomes difficult for him to evaluate new ideas objectively on their own merits without distorting them to conform to beliefs he already holds.

On the other hand, the open-minded individual does not feel threatened by new ideas or situations that seem to contradict what he already believes. As a consequence, he is able to assess new ideas or innovations on an objective basis without imposing restrictive conditions and without being encumbered by irrelevant factors.

2. Results of Testing Hypothesis 2

Hypothesis number two stated there was no statistically significant tenure-status difference related to resistance to educational innovation scores. In order to test this hypothesis the teachers were classified according to tenure status. The two classes were tenure and non-tenure. Resistance to educational innovation scores of tenured teachers were compared with those of non-tenured

teachers. This hypothesis was tested by an analysis of variance design. The statistical data presented in Table X and Table XI indicate a significant difference in resistance to educational innovation between tenured and non-tenured teachers.

An examination of Table X reveals that the mean score on the resistance to educational innovation measure of tenured teachers was higher than that of the non-tenured teachers. The result was in the expected direction based on the empirical rationale of the study.

A. Discussion of Results of Testing Hypothesis 2

Stated in the null form, the second hypothesis was that tenured teachers did not differ significantly from non-tenured teachers on the resistance to educational innovation measure. The hypothesis was rejected. As expected, tenured teachers were higher than non-tenured teachers on the resistance to educational innovation measure. This result is consistent with the previous research of Anderson,⁵ which tends to indicate a

5 James G. Anderson, Bureaucracy in Education, Baltimore, The Johns Hopkins Press, 1968, p. 152-153.

significantly positive relationship between tenure status of junior high school teachers and resistance to educational innovation.

The underlying assumption of this hypothesis was based on the idea that resistance to educational innovation may be indigenous to certain sub-groups within the teaching profession. Therefore, it was hypothesized that tenured teachers would evidence a higher level of resistance toward educational innovation than non-tenured teachers. It is proposed that tenured teachers would be less receptive toward educational innovation because goal displacement or resistance to change is indigenous to tenure status within a school system.

This point is reinforced by Anderson who suggests that:

The level of professional training and experience is also related to resistance to innovation. Teachers with tenure evidence a high level of disinterest in new programs and approaches.⁶

Another possible explanation for the tendency of tenure status to be related to resistance toward educational

6 Anderson, Op. Cit., p. 152-153.

innovation may be interpreted in light of the inflexibility of the tenured teacher in being receptive to new ideas. Support for this contention is provided in research by Willower and Jones,⁷ which suggests that more experienced teachers at the junior high school level generally held more rigid views than their less experienced colleagues. Anderson emphasizes this point when he suggests that:

Rigid adherence to rules and acceptance of the status quo results in an increased reluctance to consider new methods as demanded by changing conditions both inside and outside of the organization.

This attitude is manifested by rigid stereotyped behavior which may be taken as an index of goal displacement.⁸

3. Results of Testing Hypothesis 3

The third hypothesis stated in the null form was that there was no statistically significant interaction effect between tenure status and dogmatism when the criterion was resistance to educational innovation. This hypothesis was tested by the analysis of variance design

7 Donald Willower and Ronald G. Jones, "When Pupil Control Becomes an Institutional Theme", Phi Delta Kappan, Vol. 45, No. 2, November 1963, p. 107.

8 Anderson, Op. Cit., p. 70.

using the technique of unweighted means used in hypotheses 1 and 2.

The statistical data presented in Table XI indicate that hypothesis three as stated in the null form was not rejected because the obtained value of F was less than the critical value provided in the F table.

Figure 1 shows the lack of the interaction effect between tenure status and dogmatism when the criterion was resistance to educational innovation as measured by the scores of the E.I.A.S. In this connection, a high score reflects resistance to educational innovation. Figure 1 also illustrates the difference between the E.I.A.S. means of the closed-minded tenured teachers and the open-minded tenured teachers. The figure also illustrates the difference between the E.I.A.S. means of the closed-minded non-tenured teachers and the open-minded non-tenured teachers.

When the difference between the means of the two tenure groups was compared with the difference between the means of the two non-tenured groups, the interaction effect was non-significant.

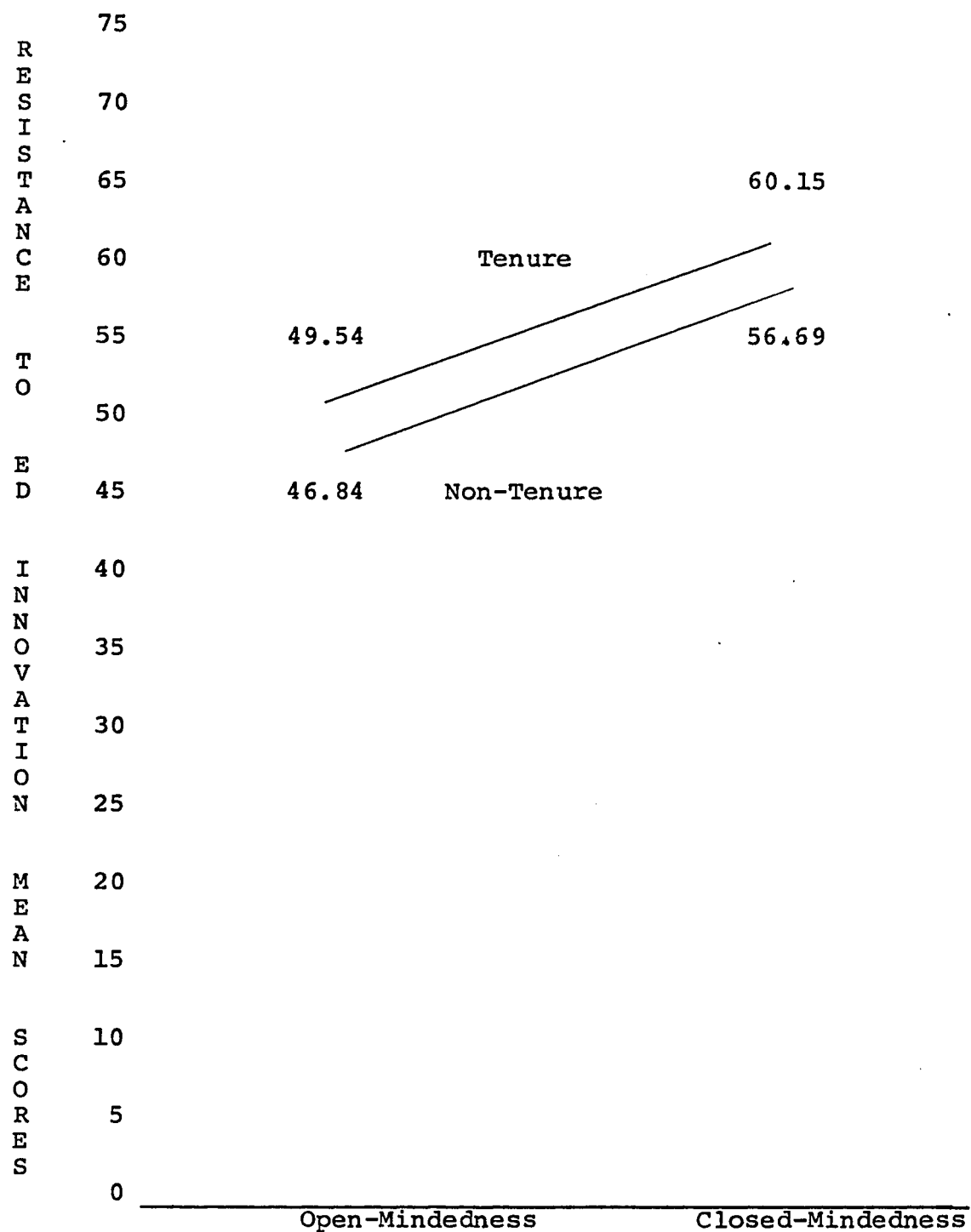


Figure 1.- Interaction Between Tenure Status and Dogmatism based on Resistance to Educational Innovation Attitude Scale Data.

A. Discussion of Results of Testing Hypotheses 3

This hypothesis asserted that tenure status in a school system influenced innovativeness of closed-minded junior high school teachers but had relatively little influence on open-minded teachers. In this hypothesis, it was proposed to regard tenure status in a school system as an organizational influence. This influence is postulated to be an important determinant of the behavior of closed-minded teachers. However, a possible explanation for the lack of a significant interaction in the present study may be explained by Rokeach's theory of dogmatism. In this regard, each person is motivated to arrange ideas and authority in harmonious relation with each other.

Rokeach expressed this notion as follows:

We may conceive of each disbelief subsystem in a person as somehow giving rise to a characteristic negative force of a certain strength. This determines the probability of the person's interaction with ideas, people, and authorities affiliated with systems other than his own. As the strength of the negative force associated with a given disbelief subsystem is increased, the probability of interaction is decreased, and the strength of a required opposing positive opposing force, if there is to be interaction, is increased.⁹

⁹ Milton Rokeach, The Open and Closed Mind, New York, Basic Books, p. 330.

In the case of tenure status, dogmatism and receptivity toward educational innovation, it is likely that there are yet other motivational forces at work. Although there is no specific information on this, it could be hypothesized that teacher mobility, for instance, would be relevant to the present study. At the time of the present study, teacher mobility was quite high. However, at a time of low teacher mobility, the importance of tenure status may be a more salient factor to the closed-minded teacher than during a time of high teacher mobility.

4. Further Discussion and Research

Since each hypothesis was discussed separately, this section will cover only those issues which were either not covered previously or were only considered briefly above.

One such issue is the question of how the findings of this study compared with other findings which attempted to link belief systems to resistance toward educational

innovation. In a study using the E.I.A.S. with administrators, Ramer¹⁰ found a significant correlation between closed-mindedness and resistance to educational innovation. The data of the present study were analyzed for correlations among dogmatism, tenure status and resistance toward educational innovation. Pearson product-moment and point-biserial coefficients of correlation were computed. Table XII presents the results of this analysis along with Ramer's results.

In the present study, significant relationships were found between the dogmatism of the junior high school teachers and resistance to educational innovation. However, no significant relationship was found between dogmatism and tenure status. These findings were consistent with those of Ramer. The analysis also supports Anderson's¹¹ finding that the tenure of junior high school teachers is related to resistance toward educational innovation.

Another issue is whether the present distribution of dogmatism scores compared with distributions obtained by

10 Ramer, Op. Cit., p. 49-56.

11 Anderson, Op. Cit., p. 152-153.

Table XII.-

A Comparison of Closed-Mindedness, "Tenure Status",
and Resistance toward Educational Innovation Correlations
in the Present Study and the Ramer Study^a

Dimensions		Ramer Sample (N=78)	Present Sample (N=302)
Closed-Mindedness	Resistance Toward Educational Innovation	.466*	.475*
Tenure	Resistance Toward Educational Innovation	.292*	.131* ^b
Closed-Mindedness	Tenure	.088	.015

* $p < .05$

a In Ramer's study tenure status refers to tenure of office, which is a reflection of the length of time an administrator has been in his present position.

b Indicates a point-biserial correlation.

other researchers using the twenty-item Dogmatism Scale.

In the present study the classification of the subjects as being low or high in dogmatism was made by dividing the obtained total scores at the median. The observed median of 60 suggested that, on the average, subjects tended to score at the theoretical midpoint of the scale. In addition, an inspection of the sample distribution revealed the distribution approached normality. The present distribution of dogmatism scores does not appreciably differ from the distributions reported by Holmes,¹² Jamias,¹³ and Childs¹⁴ in the industrial, agricultural and educational traditions, respectively.

This chapter has presented and discussed the results obtained in the present study. The next chapter will present the summary, implications and suggestions for future research.

12 John H. Holmes, Dogmatism as a Predictor of Communication Behavior in the Diffusion of Consumer Innovations, unpublished doctoral thesis, presented to (Department of Communication), Michigan State University, East Lansing, 1967, p. 70.

13 Juan F. Jamias, The Effects of Belief System Styles on the Communication and Adoption of Farm Practices, unpublished doctoral thesis presented to the (Department of Communication), Michigan State University, East Lansing, 1965, p. 40-41.

14 Childs, Op. Cit., p. 55-57.

CHAPTER IV

SUMMARY, IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

By examining variables adopted from the disciplines of education and social psychology, the central effort of the present study has been to explore certain concepts in Rogers' approach¹ to predicting innovation.

Essentially, the aim of this study was to explore the relationship of dogmatism and tenure status of junior high school teachers to receptivity toward educational innovation. Provided in Chapter I was the theoretical rationale for the study, focusing on Rogers' theoretical approach to predicting innovation. Also provided is a review of selected studies on receptivity toward educational innovation, dogmatism and tenure status.

Chapter II presented the design for the investigation of the relationship of dogmatism and tenure status to receptivity toward educational innovation. The instruments used to obtain the data were described, as were the procedures used in the analysis of the information derived

1 Everett M. Rogers, Diffusion of Innovations, New York, Basic Books, 1960, xiii-367 p.

from the instruments.

The findings and discussions of the study were reported in Chapter III. The present chapter includes a summary of the findings, some implications of the findings for educational innovation and suggestions for further research.

1. Summary of the Findings

The main finding of the study was that a relationship appears to exist between Rokeach's concept of dogmatism and teachers' resistance or receptivity toward educational innovation. This conclusion was based on the fact that open-minded teachers and closed-minded (dogmatic) teachers perceived educational innovation in different ways. Those teachers who were open-minded tended to view the innovations contained on the E.I.A.S. more favorably than their closed-minded counterparts.

A second finding of the study was that Anderson's conceptualization of tenure status as a criterion that hinders teachers' receptivity toward educational innovation did reveal significant differences in responses between tenured and non-tenured teachers on the E.I.A.S. The

non-tenured teachers responded more favorably toward educational innovations than did the tenured teachers.

A third finding was that closed-minded teachers were not differentially influenced by tenure status in their perceptions of educational innovation.

The conclusions listed above indicate that through the testing of the specific hypotheses formulated for this study, a modest amount of knowledge has been added to the specific areas of this study. The conclusions presented in the study must be viewed cautiously and interpreted as only valid within the specific conditions of this experiment -- the theoretical rationale, the sample, and the measuring instruments. These limitations demand that this project be replicated under a variety of experimental conditions.

2. Implications

A. Implications For Theory

It was pointed out that several criteria for selecting variables to correlate with a criterion of innovativeness have been tested and discussed by Rogers. Rogers' approach to prediction provided a general framework for selecting

conceptual variables within a social system. It was also revealed that Ramer's conception of receptivity toward educational innovation, Anderson's description of tenure status,² and Rokeach's concept of dogmatism³ possess the theoretical and practical characteristics suggested by Rogers for a conceptual analysis of innovativeness. However, the integration of these concepts into a general systems theory should not be interpreted as a global reflection of innovativeness, but rather as evidence that resistance toward educational innovation, as defined by the E.I.A.S., has been found for closed-minded and tenured teachers within a particular school system.

In order to determine more precisely the importance of the personal and social characteristics of teachers in the process of educational change, there is also a need to analyze the formal school organization, as Wayland⁴ has

2 James G. Anderson, Bureaucracy in Education, Baltimore, The Johns Hopkins Press, 1968, xxi-217 p.

3 Milton Rokeach, The Open and Closed Mind, New York, Basic Books, xv-447 p.

4 Sloan R. Wayland, "Structural Features of American Education as Basic Factors in Innovation", in Matthew B. Miles (ed.), Innovation in Education, New York, Teachers College, Columbia University, 1964, p. 612.

done for local schools in his study. He contends that schools have problems similar to those of other organizations in that "...schools are essentially bureaucratic structures, and the teacher's role in the system is largely that of functionary."⁵

Wayland therefore suggests that innovations may attract greater teacher resistance when they don't fit into norms which are prescribed by the school.

Miles⁶ has also suggested the need to focus on the organizational setting in which innovation takes place. He contends that both personal characteristics and the dynamics of the social setting should be integrated in developing strategies for investigating the process of change. Therefore, a conceptualization which embraces the notion of both the individual characteristics of teachers and the school environment should be a promising addition to the theory of educational change.

5 Wayland, Op. Cit., p. 612-613.

6 Matthew B. Miles, "Planned Change and Organizational Health: Figure and Ground", in Richard O. Carlson (ed), Change Process in the Public Schools, Eugene, Oregon, Center for Advanced Study of Educational Administration, University of Oregon, 1965, p. 11-34.

B. Relationship of Findings to Past Research

The review of the literature focused on the measurement of dogmatism and tenure status in determining the resistance of teachers toward educational innovation. Although this study did not measure the adoption of operative innovations per se, the results indicate that perceptions of educational innovation are different for teachers who are open-minded and closed-minded and for teachers who are classified as tenured and non-tenured within a school system.

The finding relating dogmatism and resistance to educational innovation is consistent with the results reported by Childs⁷ and Kerelejza⁸ for teachers, and by Ramer⁹ for

7 John W. Childs, A Study of the Belief Systems of Administrators and Teachers in Innovative and Non-Innovative School Districts, unpublished doctoral thesis, presented to (Department of Educational Administration), Michigan State University, East Lansing, 1965, vii-124 p.

8 Joan D. Kerelejza, The Relationship of Closed and Open Mindedness to Factors that Selected Groups of Teachers Regard as Barriers to Curriculum Change, unpublished doctoral thesis presented to (Department of Education), University of Connecticut, Storrs, 1967, viii-108 p.

9 Burton Ramer, The Relationship of Belief Systems and Personal Characteristics of Chief School Administrators and Attitudes Toward Educational Innovation, unpublished doctoral thesis presented to (Department of Educational Administration), State University of New York at Buffalo, 1967, v-94 p.

administrators. The research results dealing with dogmatism and innovation for administrators, reported by Childs¹⁰ and Marion,¹¹ are not consistent with the results reported in the present study. One possible explanation for the conflicting results reported in Childs and Marion's studies may be attributed to the differences in the designs employed in the studies. The dependent variable in Childs' study was the degree of a school district's innovativeness. The dependent variable in Marion's study was the degree of a school's innovativeness. In Childs' and Marion's studies this variable was measured by the number of innovations adopted by a school district or school, respectively, whereas in the present study, the dependent variable is the degree of a teacher's receptivity toward educational innovation.

It might be inferred from the additional evidence of the present study that the relationship between teacher dogmatism and resistance to educational innovation has been established. The obtained relationship between tenure status and resistance to educational innovation in the

10 Childs, Op. Cit., vii-124 p.

11 Guy Bertrand Marion, A Study of Selected Factors Related to the Innovativeness of Elementary School Principals, unpublished doctoral thesis presented to (Department of Educational Administration), University of Alberta, Edmonton, 1966, p. 1-176.

SUMMARY, IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH 110
present study is consistent with the results reported by
Anderson.¹²

In addition, other educational literature¹³ is also supported by the results of this study with regard to the opinion that tenure status is negatively related to innovativeness. The validity of this hypothesis can only be further ascertained by examining educator groups and sub-groups outside of the junior high schools.

C. Implications for School Administrators

The results of this study have meaning for other educational populations only inasmuch as the population resembles the sample used in the present study. Of critical importance in applying the conclusion of this study to other teacher populations is that approximately fifty-percent of the teachers in the sample were tenured teachers, which reflects a more equal distribution of tenured and non-tenured teachers in the sample population

¹² Anderson, Op. Cit., p. 152-153.

¹³ Daniel E. Griffiths, "Administrative Theory and Change in Organizations", in Miles (ed), Op. Cit., p. 434.

SUMMARY, IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH 111

than has been reported in past research studies.^{14,15} Although teaching staffs and schools vary from school system to school system, the findings relating dogmatism and tenure status to resistance toward educational innovation are available for comparison with findings reported in other educational research studies. For example, the present distribution of dogmatism scores does not appreciably differ from the distribution reported by Childs¹⁶ for teachers in Michigan school districts.

This study was of no value for identifying teachers who are acceptors or rejectors of operative innovations within a school system. Therefore, no guidance is offered for a school administrator attempting to identify adopters. However, there is some support for the idea that the implementation of successful educational change often requires that the teacher be receptive toward educational innovation during the early stages of the change process, and that the

14 Anderson, Op. Cit., p. 59.

15 John Wiens, Attitudes Influence and Innovativeness: An Analysis of Factors Related to Innovativeness in Educational Organizations, unpublished doctoral thesis presented to the (Faculty of Educational Administration), University of Alberta, Edmonton, 1967, p. 152.

16 Childs, Op. Cit., p. 54-57.

open-minded, non-tenured teachers seem to have more favorable attitudes toward educational innovation than their closed-minded, tenured counterparts. Whether or not both closed-minded teachers and tenured teachers were more resistive toward educational innovation may not be as important as the necessity to provide them with support, if planning for change is to have a greater chance of success.

One of the main objectives of this study was to provide a prototype, suggest some general guidelines, and provide data for educational administrators who need to select teachers that may be receptive toward educational innovation.

Before examining this research for the purpose of deciding which teachers would be more receptive to educational innovation, the administrator should decide first what sorts of teachers he wants and the degree to which he can and should attempt to influence them. This would require the administrator to establish a hierarchy of values against which he can examine this research and upon which he could implement decisions regarding educational change in his own school milieu. Chin states that:

SUMMARY, IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH 113

The values of the practitioner-educator, drawn from desired goals of his profession, the society or culture, religious ideology or other sources of validation, are paramount in shaping the paradigm for both practical and scientific purposes.¹⁷

The possibility that relationships exist between dogmatism and resistance toward educational innovation, and between tenure status and resistance toward educational innovation, suggests that the following ideas may be useful in the implementation of educational change.

The findings of the present study suggest that the predictor variables of dogmatism and tenure status might be useful in identifying teachers that are receptive toward educational innovation. A review of the literature on educational change uncovered little information on teacher characteristics as predictors of innovativeness. Therefore, a questionnaire similar to one used in the present study might provide one approach which could be included in the overall planning for educational change. Such questionnaires in conjunction with tape-recorded

17 R. Chin, "New Directions in Research on Adolescent Education", in F. Paterson (ed.), The Adolescent Citizen, Glencoe, Illinois, The Free Press, 1960, p. 342.

interviews of teachers could be used. The teachers' responses to selected questions on operative innovations could be analyzed within a school or school system and categorized in order to discover the content and direction of their views. Such an analysis might have implications for in-service programs, curriculum development practices, and teacher selection procedures. In addition, receptivity toward educational innovation, as used in the present study, lends particular emphasis to Barnett's¹⁸ question as to why an innovation appeals more to one person than another.

3. Suggestions for Further Research

A. The Study of Some Intervening Variables

A study of some appropriate intervening variables may help the researcher and practitioner to account for teachers' resistance toward educational innovation. The intervening variable is determined, in part, by the particular manner in which the dependent variable is defined. Since the present study defines the dependent variable as

18 H.G. Barnett, Innovation: The Basis of Cultural Change, New York, McGraw-Hill, 1953, p. 378.

SUMMARY, IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH 115

resistance toward educational innovation, one possible intervening variable that may affect the teacher's attitudes toward educational innovation could be the individual school. Bennis et al. maintain that "...any new behavior which does not reflect new attitudes will not be internalized or stable."¹⁹ Are attitudes that support educational innovation and innovative behavior modified as a result of the school environment? If such attitudes do change as a result of the individual school environment, are they stable in each individual school within a school system? Is the resistance toward educational innovation due to tenure status and dogmatism, or is it caused by particular factors in the individual schools? Do teachers who have established meaningful relationships in their schools with other teachers show greater open-mindedness in their behavior than those who have not?

A second intervening variable worthy of study is anxiety in regard to the teachers' tenure status and attitudes toward innovation. Coleman, in a discussion of

¹⁹ W.G. Bennis, et al., Interpersonal Dynamics: Essays and Readings on Human Interaction, Homewood, Ill., Dorsey Press, 1964, p. 386.

perception and anxiety, states that:

In general, a situation perceived as threatening is much more stressful than one perceived as presenting a difficult but manageable problem. Threat arouses anxiety which, as we shall see, has many implications for adjustive behavior.²⁰

To what extent do both teachers with and without tenure who experience high levels of anxiety in their teaching position become resistive toward educational innovation?

B. A Strategy For Future Research

Although a study of personal and social factors of teachers and innovativeness offers the researcher important variables to study, this investigator believes that priority should now be given to the scientific evaluation of the outcomes of innovations. As Miles points out:

Thus the question of the fate of innovations is an extremely crucial one, for which most of the preceding generalizations have been a sort of process prelude. However, the question of adoption and continuation begs the more fundamental question, the one which an innovation's proponents usually answer automatically and positively: Is it really effective?²¹

²⁰ James C. Coleman, Abnormal Psychology and Modern Life, Chicago, Scott, Foreman, 1964, p. 88.

²¹ Matthew B. Miles, "Innovation in Education: Some Generalizations", in Miles (ed.), Op. Cit., p. 657.

After the researcher determines the quality of an innovation (what outcomes should result from the adoption of the innovation), he should study the relationships among the characteristics of the teachers, the nature of the teachers' school milieu both before and after the introduction of the innovation, and how these relationships may affect the change process. This approach to the study of educational change would serve two purposes: (1) administrators of a school would have evidence of the extent to which the innovation achieves its intended objectives, and a basis for making a decision regarding its future use; and (2) the study of the teachers, school environment, and the process of educational change vis-à-vis a particular measured educational outcome would show how effective an innovation might be in producing a particular effect with a particular group in a particular environment. The systematic study of the interrelationships among variables in a school system would contribute to the testing of the theory of educational change.

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This publication examines the organizational structure of the junior high school by determining departmental and teacher procedures and opinions in a large eastern metropolitan school system. An important finding was that a significant relationship exists between the tenure status of junior high school teachers and resistance toward educational innovation within the school system.

Childs, John Williams, A Study of the Belief Systems of Administrators and Teachers in Innovative and Non-Innovative School Districts, unpublished doctoral thesis presented to Department of Educational Administration, Michigan State University, East Lansing, 1965, 124 p.

The study deals with the nature of the belief systems of individuals in school districts and the adoption of new educational practices. In particular, the study found that the proportion of open belief system administrators in the school districts studied appear to be about equal in both innovative and non-innovative districts. An important finding was that more teachers in innovative schools had open belief systems than teachers in non-innovative schools.

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The study proposed the thesis that the socio-psychological theory of beliefs as formulated by Rokeach would generate new insights into the diffusion and adoption of a consumer innovation. Consideration of the findings indicates that individuals high in dogmatism do behave somewhat differently than those low in dogmatism. However, no significant relationships between dogmatism and innovativeness were reported in the study.

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The author related the theory of beliefs systems propounded by Rokeach to the acceptance of agricultural innovations. An important finding was that adoption of innovations were significantly related to open-mindedness. The author concluded that this relationship was asserted because the attitudinal predispositions characterizing low dogmatic individuals make them open to information, such as one suggesting an alteration of existing modes of conduct or belief.

Kerelejza, Joan Delores, The Relationship of Closed and Open Mindedness to Factors That Selected Groups of Teachers Regard as Barriers to Curriculum Change, unpublished doctoral thesis presented to Department of Education, The University of Connecticut, Storrs, 1967, 108 p.

The author related teacher dogmatism to barriers of curriculum change. She found that closed-minded teachers identified a significantly larger total number of barriers to curriculum change than did open-minded teachers. Dogmatism was therefore shown to be a factor which affects the teacher's reception of curriculum change.

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A research study which investigated the validity of several authority distinctions suggested in Rokeach's theory of dogmatism. The finding of the study implies that the

dogmatic personality theory clearly suggests that there are not only perceptual and cognitive differences, but also behavioral differences between dogmatic and non-dogmatics.

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The author investigated the relationship among belief systems, personal characteristics of chief school administrators in western New York State, and attitudes toward educational innovation. His instrument, Educational Innovation Attitude Scale, was used in the present study.

Rogers, Everett M., Diffusion of Innovations, New York, The Free Press of Glencoe, 1962, 367 p.

The author reviews more than five hundred publications on the diffusion and adoption of innovations in the research traditions of anthropology, early sociology, rural sociology, education, industry, and medical sociology. He concludes this comprehensive study with a theory of diffusion and adoption of innovations.

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reported was not significant.

Rokeach, Milton, The Open and Closed Mind, New York, Basic Books, 1960, 447 p.

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APPENDIX 1

1. Questions Comprising the Pilot Scale Used in
Developing the Educational Innovation Attitude Scale.

Educational Innovation Attitude Pilot Scale

- _____ 1. I would rather spend money for new books for the library than for teaching machines.
- _____ 2. I feel it is better to schedule courses by hand, than to have it done by a computer.
- _____ 3. Team Teaching causes too many problems.
- _____ 4. Half-day of school and a half-day of work arrangement (work-study) is a poor program, as there are still many dropouts.
- _____ 5. Although Modern Math is being instituted in many schools, I think the traditional approach of teaching Math is best.
- _____ 6. I feel the new flexible type of school building encourages disorganization and confusion.
- _____ 7. The Language Laboratory is not necessary to the teaching of a foreign language.
- _____ 8. I believe that Communism should not be taught in the schools.
- _____ 9. I believe teacher-aides are a luxury to give teachers more free periods.
- _____ 10. Allowing students to progress, academically, as fast as they are able is not a wise policy.
- _____ 11. Modular scheduling is too confusing for the students and the teachers.
- _____ 12. Reading specialists are not essential to a good school program.
- _____ 13. The junior high (7-8-9) has proved to be satisfactory, and no change in organizational pattern is necessary.
- _____ 14. I don't see the value of school psychologists.

- _____ 15. Even though Educational Television has some value, I feel it requires too many changes to install as part of the school program.
- _____ 16. There is no need for guidance-counsellors in the elementary school, as the teacher knows the students and parents, and can handle their problems.
- _____ 17. Local Public schools generall do not need the help of the Federal government.
- _____ 18. I believe that the elementary school is too early to start teaching a foreign language.
- _____ 19. Audio-visual materials are used by many teachers as an excuse "not to teach".
- _____ 20. I believe that little educational value is gained by the school system when teachers attend conferences.
- _____ 21. Guidance-counsellors should teach a certain number of classes every week in order to remain knowledgeable about the problems involved in classroom teaching.
- _____ 22. Summer school should only be for those students who failed during the regular school year.
- _____ 23. Schools should not give psychological tests, because the results are too difficult to interpret.
- _____ 24. The numerical grade system is the best method of reporting achievements to the parents.
- _____ 25. In my opinion teachers who join a teacher's union are unprofessional.
- _____ 26. It is undemocratic to group students by ability, as it deprives them of learning to get along with all people.

- _____ 27. I feel the college-bound students should be given an edge over non-college bound students when figuring out the senior class rankings.
- _____ 28. I feel there is not much to be gained from classes held on Saturday, as the teachers and students need that time off.
- _____ 29. I believe that sabbatical leave is disruptive to the school system, and is of questionable value.
- _____ 30. I believe it is not the job of the school to teach about venereal diseases.
- _____ 31. It is difficult to see the value of kindergarten, as it is mostly a play period.
- _____ 32. I feel the value of using data processing for report cards is questionable, as it gives up the personal touch between school and parent.
- _____ 33. I feel the Initial Teaching Alphabet must undergo much more experimentation before I would consider installing it as part of the curriculum.
- _____ 34. Adult Education courses in the public schools are not necessary, as the people can receive these courses from various community colleges.
- _____ 35. The "Head Start" programs are unfair, as they exclude those students who are not culturally deprived.
- _____ 36. Although carpeting has some positive points in its favor, it doesn't belong in the schools.
- _____ 37. It is difficult for me to see how sex education can be taught in the public schools.
- _____ 38. The Advanced Placement Program should not be part of the school curriculum as it benefits a small number of students.

- _____ 39. The teaching of driver education is a "frill", and should not be taught during the school day.
- _____ 40. I feel there are many places a student can learn to swim; therefore, it is not necessary to have swimming taught in the school.
- _____ 41. I can't see any value in having Negro teachers on my staff.
- _____ 42. The neighborhood school concept is the very foundation that the public schools are based on, and should not be tampered with.
- _____ 43. I believe that Negro students should not be bused into suburban schools.
- _____ 44. Generally, women are not suited to be principals.
- _____ 45. I feel that teacher effectiveness is weakened by granting them tenure.
- _____ 46. Although it is a safety feature, I feel installing two-way radios in school buses is not worth the expense.
- _____ 47. It is improper for teachers to have direct salary negotiations with Boards of Education.
- _____ 48. The use of teaching machines undermines the importance of the classroom teacher.

APPENDIX 2

COVER LETTER FOR THE STUDY

COVER LETTER FOR THE STUDY

Dear Colleague,

The teachers in your school system are being asked to complete a questionnaire, which is part of my doctoral research project for the University of Ottawa.

Please complete every item, even when there is some doubt about the best response.

You will observe that in order to keep all answers in strict confidence, neither your name nor the name of your school appears on the questionnaire. But this precaution makes impossible any future followup to collect missing information. Consequently cooperation on the part of all teachers is essential to the success of this research project.

The Acting Superintendent of Schools is aware of this research project and has given his approval.

One person in each school is being asked to distribute and to collect the questionnaires. In your school, this person is .

After you fill in the questionnaire, will you please put it in the enclosed envelope, seal it and return it as soon as possible to . I shall return to pick up the envelopes two days after their distribution.

I want to thank you in advance for your assistance. I am keenly aware of the frequency with which teachers are asked to perform functions which are not directly related to their teaching position. However, your participation in educational research of this kind is important for the improvement of education and, with this in mind, I ask your cooperation.

Sincerely,

James C. Fish

APPENDIX 3

DATA COLLECTING INSTRUMENTS -- PERSONAL DATA
FORM, EDUCATIONAL INNOVATION ATTITUDE SCALE,
TWENTY-ITEM DOGMATISM SCALE

Data Collecting Instruments
Personal Data Form

Directions: Please indicate your response by making a check in the appropriate space. It is most important that every item be answered. These responses will all remain completely confidential.

How many years have you been teaching? (Count this year as a full year).

_____ 1 year	_____ 4 years	_____ 15-19 years
_____ 2 years	_____ 5-9 years	_____ 20 or more
_____ 3 years	_____ 10-14 years	

Are you?

_____ a tenure teacher _____ a non-tenure teacher

What was your age at your last birthday?

_____ 20-24	_____ 25-29	_____ 30-34	_____ 35-39	_____ 40-44
_____ 45-49	_____ 50-54	_____ 55-59	_____ 60 or more	

Educational Innovation Attitude Scale

Several statements on a variety of topics are listed below. 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.

Nobody will know what your answers are, so you may answer as you believe.

Directions: Write 1,2,3,5,6,7, depending on how you feel in each case. You will notice 4 has been omitted.

- | | |
|----------------------------|-------------------------|
| 1: I DISAGREE VERY MUCH | 5: I AGREE A LITTLE |
| 2: I DISAGREE ON THE WHOLE | 6: I AGREE ON THE WHOLE |
| 3: I DISAGREE A LITTLE | 7: I AGREE VERY MUCH |

- _____ 1. I would rather spend money for new books for the library than for teaching machines.
- _____ 2. Although Modern Math is being instituted in many schools, I think the traditional approach of teaching Math is best.
- _____ 3. The Language Laboratory is not necessary to the teaching of a foreign language.
- _____ 4. I believe the schools should not teach about Communism.
- _____ 5. Modular scheduling is too confusing for the students and the teachers.

- ____ 6. Reading specialists are not essential to a good school program.
- ____ 7. The junior high (7-8-9) has proved to be satisfactory and no change in organizational pattern is necessary.
- ____ 8. There is no need for guidance-counselors in the elementary school, as the teacher knows the students and parents, and can handle their problems.
- ____ 9. Local Public schools generally do not need the help of the Federal government.
- ____ 10. I believe that the elementary school is too early to start teaching a foreign language.
- ____ 11. The numerical grade system is the best method of reporting achievement to the parents.
- ____ 12. In my opinion teachers who join a teacher's union are unprofessional.
- ____ 13. I feel there is not that much to be gained from classes held on Saturday, as the teachers and students need that time off.
- ____ 14. I feel the value of using data processing for report cards is questionable, as it gives up the personal touch between school and parent.
- ____ 15. The "Head Start" programs are unfair, as they exclude those students who are not culturally deprived.
- ____ 16. It is difficult for me to see how sex education can be taught in the public schools.
- ____ 17. The neighborhood school concept is the very foundation that the public schools are based on, and should not be tampered with.
- ____ 18. Generally, women are not suited to be principals.

- _____ 19. I feel that teacher effectiveness is weakened by granting them tenure.
- _____ 20. Although it is a safety feature, I feel installing two-way radios in school buses is not worth the expense.

Dogmatism Scale

Several statements on a variety of topics are listed below. 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.

Nobody will know what your answers are, so you may answer as you believe.

Directions: Write 1,2,3,5,6,7, depending on how you feel in each case. You will notice 4 has been omitted.

- | | |
|----------------------------|-------------------------|
| 1: I DISAGREE VERY MUCH | 5: I AGREE A LITTLE |
| 2: I DISAGREE ON THE WHOLE | 6: I AGREE ON THE WHOLE |
| 3: I DISAGREE A LITTLE | 7: I AGREE VERY MUCH |

- ____ 1. 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.
- ____ 2. My blood boils whenever a person stubbornly refused to admit he's wrong.
- ____ 3. There are two kinds of people in this world: those who are for the truth and those who are against the truth.
- ____ 4. Most people just don't know what's good for them.
- ____ 5. Of all the different philosophies which exist in this world there is probably only one which is correct.

- _____6. The highest form of a government is a democracy and the highest form of democracy is a government run by those who are most intelligent.
- _____7. The main thing in life is for a person to want to do something important.
- _____8. I'd like it if I could find someone who would tell me how to solve my personal problems.
- _____9. Most of the ideas which get printed nowadays aren't worth the paper they are printed on.
- _____10. Man on his own is a helpless and miserable creature.
- _____11. It is only when a person devotes himself to an ideal or cause that life becomes meaningful.
- _____12. Most people just don't give a "damn" for others.
- _____13. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.
- _____14. 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.
- _____15. The present is all too often full of unhappiness. It is only the future that counts.
- _____16. The United States and Russia have just about nothing in common.
- _____17. In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.
- _____18. 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.

- _____19. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.
- _____20. It is better to be a dead hero than to be a live coward.

APPENDIX 4

DISTRIBUTION OF EDUCATIONAL INNOVATION ATTITUDE SCALE SCORES AND DOGMATISM SCALE SCORES BY TENURE STATUS

Code:

E.I.A.S. = Educational Innovation Attitude Scale Scores

D.S. = Twenty-Item Dogmatism Scale Scores

T = Tenure

NT = Non-Tenure

DISTRIBUTION OF EDUCATIONAL INNOVATION ATTITUDE
SCALE SCORES AND DOGMATISM SCALE SCORES BY
TENURE STATUS

School A

<u>Teacher</u>	<u>Tenure Status</u>	<u>E.I.A.S.</u>	<u>D.S.</u>
1	NT	39	41
2	T	39	37
3	T	48	52
4	T	45	28
5	NT	58	57
6	T	54	63
7	T	46	49
8	T	60	63
9	T	75	74
10	T	41	56
11	T	47	81
12	NT	38	63
13	NT	51	66
14	NT	45	50
15	T	72	72
16	T	50	64
17	NT	58	65
18	T	62	85
19	NT	42	79
20	NT	49	52
21	T	90	90
22	NT	72	72

School B

23	NT	40	40
24	NT	63	84
25	NT	42	34
26	NT	92	90
27	T	71	64
28	NT	43	51
29	T	43	88
30	T	43	45
31	T	62	48
32	NT	61	64
33	NT	43	53
34	T	44	33
35	NT	44	43
36	T	60	56
37	NT	45	61

APPENDIX 4

144

<u>Teacher</u>	<u>Tenure Status</u>	<u>E.I.A.S.</u>	<u>D.S.</u>
38	T	60	87
39	T	46	51
40	NT	52	90
41	T	54	54
42	NT	55	71
43	NT	55	66
44	T	58	51
45	T	38	38
46	NT	59	54
47	NT	60	65

School C

48	NT	36	51
49	T	80	63
50	T	70	64
51	T	42	47
52	T	41	69
53	NT	35	58
54	NT	63	57
55	NT	39	59
56	NT	38	54
57	NT	59	82
58	NT	63	68
59	T	43	69
60	NT	48	66
61	T	46	46
62	T	53	56
63	T	56	57
64	NT	42	38
65	NT	48	74

School D

66	T	63	67
67	NT	25	41
68	NT	68	74
69	NT	39	53
70	NT	36	58
71	T	71	72

APPENDIX 4

145

<u>Teacher</u>	<u>Tenure Status</u>	<u>E.I.A.S.</u>	<u>D.S.</u>
72	NT	59	43
73	T	41	71
74	NT	31	74
75	NT	42	45
76	T	75	78
77	T	61	65
78	NT	35	52
79	NT	36	39
80	T	34	44
81	NT	35	46
82	T	38	56
83	NT	34	52
84	NT	32	52
85	T	47	51
86	T	40	34
87	T	46	54
88	NT	46	67
89	NT	44	77
90	T	46	72
91	NT	46	47
92	NT	45	77
93	T	44	49
94	T	44	51
95	NT	44	36
96	T	43	51
97	NT	41	63
98	T	68	37
99	NT	69	51
100	NT	41	39
101	NT	36	51
102	NT	64	77
103	T	38	57
104	NT	81	72
105	T	81	84
106	NT	81	76
107	NT	73	84
108	NT	70	72
109	NT	70	79
110	T	70	68
111	T	69	57
112	NT	41	60
113	T	48	48
114	T	59	45
115	T	59	73
116	NT	57	75
117	T	56	53
118	NT	56	76
119	T	58	60

APPENDIX 4

146

<u>Teacher</u>	<u>Tenure Status</u>	<u>E.I.A.S.</u>	<u>D.S.</u>
120	T	55	86
121	T	55	55
122	NT	60	77
123	NT	59	89
124	NT	53	61
125	NT	54	84
126	NT	51	78
127	T	52	52
128	NT	50	44
129	NT	50	78
130	T	49	57
131	NT	49	37
132	NT	60	74
133	NT	60	67
134	NT	64	60
135	NT	64	54
136	NT	61	87
137	T	61	66
138	T	62	56
139	T	67	83
140	T	51	68
141	NT	45	64
142	NT	64	73

School E

143	NT	48	63
144	T	48	51
145	NT	81	65
146	T	48	52
147	T	43	45
148	NT	41	60
149	NT	42	43
150	T	46	69
151	NT	32	63
152	T	36	38
153	NT	50	81
154	NT	64	69
155	NT	51	81
156	T	46	51
157	NT	90	99
158	NT	47	66
159	NT	56	55
160	T	49	83
161	T	52	77
162	NT	52	60
163	T	68	65

APPENDIX 4

147

<u>Teacher</u>	<u>Tenure Status</u>	<u>E.I.A.S.</u>	<u>D.S.</u>
164	T	50	72
165	T	66	72
166	NT	60	63
167	T	61	62
168	NT	57	79
169	NT	57	62

School F

170	NT	42	54
171	T	58	52
172	T	48]	62
173	T	48	53
174	T	57	60
175	NT	55	94
176	T	55	72
177	NT	52	55
178	T	51	64
179	NT	51	60
180	T	68	86
181	T	70	68
182	T	67	54
183	NT	44	57
184	NT	44	60
185	NT	44	53
186	T	65	83
187	T	60	47
188	T	58	58
189	NT	40	38
190	NT	38	54
191	NT	31	33
192	T	37	55
193	NT	37	75
194	NT	39	52
195	NT	39	54
196	NT	30	42

School G

197	T	32	36
198	T	75	81
199	T	67	69
200	T	37	57
201	T	37	65
202	T	81	68
203	NT	38	48
204	T	39	79
205	NT	40	37

APPENDIX 4

148

<u>Teacher</u>	<u>Tenure Status</u>	<u>E.I.A.S.</u>	<u>D.S.</u>
206	T	44	61
207	NT	44	54
208	NT	45	64
209	T	46	59
210	T	46	67
211	NT	48	71
212	T	72	63
213	T	74	64
214	T	63	67
215	T	66	67
216	T	57	65
217	T	57	62
218	NT	63	80
219	NT	37	52
220	T	62	72
221	NT	61	63
222	T	60	64
223	T	61	70
224	NT	60	80
225	T	59	58
226	NT	58	46
227	T	58	56
228	T	58	57
229	T	56	72
230	NT	56	88
231	NT	54	54
232	T	53	71
233	T	50	67
234	NT	50	64
235	NT	63	60
236	T	49	52
237	T	49	58
238	NT	64	48

School H

239	T	50	49
240	NT	52	48
241	NT	59	65
242	T	75	55
243	T	47	47
244	T	51	64
245	T	42	43
246	T	51	74
247	T	45	56
248	NT	56	76
249	NT	50	38
250	NT	35	51

APPENDIX 4

149

<u>Teacher</u>	<u>Tenure Status</u>	<u>E.I.A.S.</u>	<u>D.S.</u>
251	T	43	40
252	NT	45	59
253	T	56	45
254	NT	50	52
255	NT	42	73
256	NT	58	67
257	NT	88	77
258	NT	66	58
259	NT	63	57
260	NT	39	76
261	T	67	54
262	T	67	62
263	NT	45	53
264	T	60	63
265	T	48	72
266	NT	61	53
267	NT	40	56
268	NT	78	58

School I

269	T	96	72
270	T	84	77
271	NT	51	49
272	NT	42	61
273	T	58	80
274	T	44	85
275	T	59	56
276	N	47	54
277	T	41	44
278	NT	56	53
279	NT	49	62
280	NT	72	45
281	NT	55	68
282	NT	70	63
283	T	79	72
284	T	34	22
285	NT	52	54
286	NT	44	60
287	T	68	82
288	NT	41	40
289	T	66	88
290	NT	75	77
291	T	57	51
292	T	33	40
293	T	53	65
294	NT	78	56
295	T	58	71

APPENDIX 4

150

<u>Teacher</u>	<u>Tenure Status</u>	<u>E.I.A.S.</u>	<u>D.S.</u>
296	T	31	40
297	NT	47	74
298	NT	44	62
299	T	58	43
300	T	53	75
301	T	64	50
302	T	48	72

APPENDIX 5

ABSTRACT OF
AN EMPIRICAL STUDY OF THE EFFECT OF DOGMATISM
AND TENURE STATUS ON EDUCATIONAL INNOVATIVENESS

ABSTRACT OF
AN EMPIRICAL STUDY OF THE EFFECT OF DOGMATISM
AND TENURE STATUS ON EDUCATIONAL INNOVATIVENESS¹

The purpose of the thesis was to determine whether or not relationships exist among belief systems and tenure status of junior high school teachers in a metropolitan school system, and their attitudes toward educational innovation. On the basis of previous theory and research it was anticipated that closed and open personalities should differ in their receptivity toward educational innovation. It was also assumed that tenured and non-tenured teachers should differ in receptivity toward educational innovation.

Specifically, the thesis was designed to investigate this question: Do dogmatism and tenure status of junior high school teachers influence their attitudes towards educational innovation?

The following three statistical null hypotheses were developed to investigate the above question:

1. There are no statistically significant differences on resistance to educational

¹ James C. Fish, doctoral thesis presented to the School of Graduate Studies of the University of Ottawa, Ontario, June, 1975, xi-132 p.

innovation scores between open-minded teachers and closed-minded teachers.

2. There are no statistically significant tenure status differences related to resistance to educational innovation scores.
3. There is no statistically significant interaction effect between tenure status and dogmatism when the criterion is resistance to educational innovation.

The sample for the study consists of 302 junior high school teachers in a large eastern metropolitan school system in the United States. The measuring instruments include the Educational Innovation Attitude Scale, the twenty-item Dogmatism Scale, and a Personal Data Form.

The data were analyzed by analysis of variance techniques. Conclusions drawn from the data reveal that there were significant positive relationships between tenure status and resistance to educational innovation, and between closed-mindedness and resistance to educational innovation. It is also revealed that dogmatism-tenure status interactions were not significant on the resistance to educational

innovation measure.

The findings tend to support the independent nature of dogmatism and tenure status as significant predictors of resistance toward educational innovation. Furthermore, this study shows that tenure status and Rokeach's theory of dogmatism can be empirically defined and their effects on innovative behavior investigated.

As a result of this study, the following are suggestions for further research:

1. That replicative studies with samples of teachers other than junior high school teachers be chosen from different school systems;
2. That further investigations of dogmatism and tenure status dimensions in relation to operative innovations be conducted;
3. That further examinations of the interaction of personality factors and environmental conditions in relation to innovativeness be made.