

A STUDY OF OPEN AND CLOSED MINDEDNESS
IN THE RATING OF TEACHER EFFECTIVENESS

by

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Abstract

This study investigated the effect of open and closed mindedness in school principals with respect to the rating of teachers on their staffs. Subjects were 43 principals and 801 teachers in the Greater Victoria School District (District 61) of British Columbia, each of whom completed Rokeach's Dogmatism Scale (Form E). Hypotheses were formed to test Rokeach's ideas concerning the differences between the open mindedness and closed mindedness of individuals in their perception of others.

The dogmatism scores of principals and teachers were arranged along a continuum, the extremes of which indicated either open mindedness (low dogmatism) or closed mindedness (high dogmatism). The scores of the teachers selected as most effective or least effective and the scores of the principals making the selections were subjected to chi-square testing.

Other variables considered were the principals' ages and years of experience, the ages and sex of the teachers selected as most effective or least effective, and the number of years that the selected teachers had been under the supervision of the principal making the selection.

Results indicated that Rokeach's theories regarding open and closed mindedness could not be fully substantiated by this study.

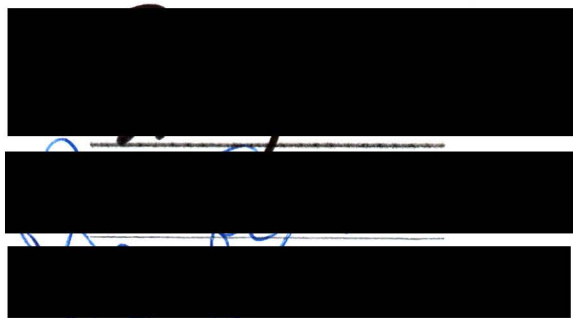


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CHAPTER I

INTRODUCTION

The rating of a teacher usually involves comparisons with other teachers or an appraisal of the teacher's proficiency in meeting certain criteria. The problem of how to identify effective teachers has challenged educational administrators for many years.

The Public Schools Act states quite clearly who is responsible for evaluation (Chapter 319, Division 3, Section 9(1)(k)(1)), but says nothing about the standards by which such evaluation should be measured, or who is the better judge of a teacher's competence, the principal or the district superintendent.

Over the years it has become common practice for the principal to evaluate the teacher, presumably by judging the teacher's performance within the framework and philosophy of his school. But what exactly is he evaluating? Peter (1969, p. 42) poses the problem this way:

The competence of an employee is determined not by outsiders but by his superiors in the hierarchy. If the superior is still at a level of competence, he may evaluate his subordinates in terms of the performance of useful work--such as achieving whatever are the stated aims of the hierarchy. That is to say, he evaluates output. But if the superior has reached his level of incompetence, he will probably rate his subordinates in terms of institutional values. That is, he will see competence as the behaviour that supports the rules, rituals, and forms of the status quo. Promptness, neatness, courtesy to superiors, internal paper-work, will be highly regarded. In short, such an official evaluates input.

The values of the observer, who he is, and where he stands on important educational issues at the time of making his observations or judgements, are important to the teacher being evaluated who, it could

be argued, may be inclined to view the whole process of evaluation primarily as a symbol of the principal's power.

The situation as it exists in the Greater Victoria School District is that the principals are required to rate teachers according to their effectiveness in the classroom. This is usually done by observing teachers in the act of teaching, the purpose of which, presumably, is to aid the principal in the formation of teacher-effectiveness judgements, later to be converted to some sort of rating and made part of the teachers' personal records. Under such circumstances, it is possible for the many biases of the rater to become the major determinants of his ratings. Guilford (1954, p. 279) stated:

We judge our fellows in terms of a general mental attitude toward them; and there is, dominating this mental attitude toward the personality as a whole, a like mental attitude toward particular qualities.

Evaluation must involve conscious judgement-making. It should involve the use of criteria or standards to determine the worth of the teacher concerned. Evaluations must be distinguished from opinions which are usually made from an emotional base. Only judgements supported by clear criteria or specific evidence should be recorded in the evaluation reports.

It is doubtful if principals, when called upon to make a report on a teacher, arm themselves with a clear set of criteria or standards with which to make their judgements. The practice seems to be a series of brief visits to see the teacher in action, although many principals still hold to the idea that it is merely necessary to walk past a classroom door to determine whether or not the teacher inside the classroom is effective.

Musella (1970, pp. 15-21) says that research has failed to provide

useful criteria for the measurement and evaluation of teacher-effectiveness, and Walberg (1970, p. 410) states an opinion that 'no one has yet satisfactorily defined and devised a measure of teaching effectiveness.'

An opposite view, however, is taken by MacKay (1971, p. 16) who has recently completed a study in the junior and senior high schools in Alberta. He maintains that his findings not only show that evaluative criteria for teaching effectiveness can be determined, but also show a remarkable degree of agreement with earlier studies made by Moore (1966) and Thomas (1969), both of which will be discussed with MacKay's study in Chapter 2.

The purpose of this research is to explore the extent to which the variables of attitudes and beliefs influence principals' ratings of teachers, particularly in the selection of those whom they consider to be the most effective and least effective teachers in their respective schools.

It may well be that a teacher who is rated the most effective of one group of teachers may be rated as being much less effective in another group. If the rating is performed by a different observer, using different criteria, a completely new picture may emerge. The identification of an effective teacher may vary according to the unique ideas held by the principal about what kind of teacher is a most effective teacher. Getzels and Jackson (1960, p. 460) point out that the 'image of the teacher has undergone significant change so that many images of the 'good' teacher exist today,' but what one principal considers a good image may not necessarily be considered a good image by another, even though the teacher being observed is operating under the same conditions in the same classroom with the same students.

Is the principal, forced to depend a great deal on his own resources, inclined to select as his most effective teacher a person with similar beliefs and attitudes? Conversely, is his selection of his least effective teacher someone with dissimilar viewpoints?

The teacher who seeks promotion is dependent upon a favourable report from his principal and is rightly concerned about all aspects of evaluation. He probably would not want to feel that his rating is being prejudiced by lack of congruency between his own and his principal's belief system.

Definition of Terms

The terms used throughout this study are defined as follows:

belief system - represents all the beliefs, sets, expectancies, or hypotheses, conscious or unconscious, that a person at a given time accepts as true of the world he lives in (Rokeach, 1960, p. 33).

disbelief system - contains all the disbeliefs, sets, expectancies, conscious and unconscious that, to one degree or another, a person at a given time rejects as false (Rokeach, 1960, p. 33).

belief-disbelief system - an organization, verbal or non-verbal, of implicit and explicit beliefs or expectations (Rokeach, 1960, p. 32).

dogmatism - a closed way of thinking that could be associated with any ideology regardless of content; an authoritarian outlook in life; an intolerance toward those with opposing beliefs and a sufferance of those with similar beliefs (Rokeach, 1960, p. 4).

Dogmatism Scale - a measurement of the extent to which a person's total belief system is open or closed (Rokeach, 1960, p. 19).

high dogmatism (closed mind) - top 27% of scores on the Dogmatism Scale.

low dogmatism (open mind) - bottom 27% of scores on the Dogmatism Scale.

teachers - fully qualified teachers in the schools of the Greater

Victoria School District who participated in the study.

principals - administrators of the schools in the Greater Victoria

School District who participated in the study.

three most effective teachers - those teachers who, in the principal's

judgment, are first-rate teachers in the classroom and who

contribute maximum effort to achieve and maintain the aims and

objectives of the school.

three least effective teachers - those teachers who, in the principal's

judgment, are ineffective in the classroom and who contribute

little towards achieving or maintaining the aims and object-

ives of the school.

schools - the thirty-three elementary and ten secondary schools of the

Greater Victoria School District who participated in this

study.

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CHAPTER II

REVIEW OF RESEARCH

The difficulty of finding a neat, cut-and-dried solution to the problem of rating teachers lies in the fact that there appears to be no consensus as to what constitutes an effective teacher, or what type of effect a teacher termed 'effective' should produce. The criteria used in attempting to identify effective teachers has included such variables as ratings by pupils, ratings derived from pupil performance, and ratings resulting from the study of the social and personal characteristics of the teacher.

Teacher Evaluation

Chester Ingils (1970, p. 42), following an extensive survey involving 70 school districts, states:

We have blithely gone ahead and evaluated teachers on the basis of vaguely defined criteria, and we persist in our non-objectivity by insisting upon a subjective type of evaluation as well, with no implied statements as to the nature of the teachers.

Ingils (1970, p. 42) further maintains that it is really pointless to even raise the question of evaluation if the terms of the evaluation are not known. The fact of the matter is that for years we have been evaluating teachers without any clear-cut goals or objectives as to what constitutes effective teaching and effective teachers.

If education is meant to change students' attitudes and actions, effective teaching must be defined to achieve this goal and

to improve instruction. Evaluation should allow the teacher to identify his goals with those of the school. Sound evaluation makes goal achievement more effective by identifying strengths to be reinforced and weaknesses to be corrected. The literature covers various ways to observe and assess teachers. One way, described in a research study by Israel (1969, p. 70), combines selected goals for the learner and an assessment of the attributes of the teacher. He states that the goals must be developed cooperatively by teacher and principal for, without agreement on those, they can have no agreement on procedures or judgements, or on acceptable evidence of the teacher's success in reaching the goals of learner behaviour. The teacher's skills, attitudes, and knowledge must remain flexible, to be adjusted or modified as required, helping him to develop over time and to seek advice more readily.

There is a need for an independent means of evaluation which would do more than merely pass judgement on the worth of a teacher. A suggestion made by Selden (1970, p. 97) would see a panel of teachers, supervisors and college people set up to observe a teacher for a week or more, interview him, review records, and give a written evaluation, available to the teacher, which would emphasize his strengths and weaknesses.

A study was made by John Hain (1968) of the evaluation of teachers by principals in a random sampling of 336 elementary schools in New York State. Two-thirds of the principals involved in the study were provided with a rating form by their respective district administrations. Analysis of these forms revealed information about the

initial manner of evaluation and the probable use of these evaluations. Forms which the teachers saw and signed had clear-cut descriptive statements about the teachers, but forms which contained no provision for a teacher's signature had a list of single words or phrases which tended to create a halo effect. Recommendations arising from this study include (1) joint supervisor-teacher development of standards and procedures of supervision and evaluation, (2) principal's consultation with senior teachers regarding reappointment, and (3) periodical review and revision of the standards and procedures used in the evaluation process.

Sorenson and Gross (1968) combined on a study that presented a framework for describing, in terms of a manageable number of categories, the wide variety of data which a survey of expert opinion showed to be important to teacher evaluators. The study proceeded from the assumption that a teacher may be said to be effective only when he satisfied someone's expectations, that people differ in what they expect from teachers, and that a scheme for evaluating teachers and for predicting teacher effectiveness must take these differences into account.

The conclusions reached by Sorenson and Gross (1968, p. 36) were that subjects do differ in their beliefs and that there is a strong affective component to these beliefs, such that many people become either angry or anxious if confronted with evidence that others whom they respect see the effective teacher differently than they do.

In a study designed to develop a program for evaluating teaching

in elementary and secondary schools, Christian (1969) maintained that if the process of evaluation is to improve instruction, the teacher whose work is being evaluated must comprehend the frame of reference from which the evaluating is instituted.

In a study conducted by Guba, Jackson, and Bidwell (1959, pp. 1-12), a number of teachers were given a personality questionnaire to complete. Scores were calculated for each individual and compared with the mean score for all teachers. The researchers concluded that, in a given school, the closer that a teacher resembled the typical teacher personality pattern, the less likely he was to feel effective but the more likely he was to be regarded as effective by the principal. If this is so, the converse is also possible, that the more 'effective' a teacher feels the less likely he is to be regarded as 'effective' when rated by his principal.

Rossi (1961, p. 270) found that a teacher's sex, marital status, background, and training were insignificantly related to pupil achievement and could offer no guide as to 'effectiveness'. Getzels and Jackson (1963, pp. 572-573) came to a similar conclusion so far as intelligence was concerned.

It is quite obvious from the literature that an immense amount of time and thought has been given to the criteria of teacher efficiency but, as pointed out by Barr and Jones (1958, p. 258), researchers continually find low correlations between the more important sources of criteria such as supervisory ratings, measures of pupil growth and achievement, pupil evaluation, and teacher tests of what are thought to be fundamental knowledge, attitudes, and skills.

Brogden and Taylor (1950, p. 159) state that no matter how valid an evaluation method may seem to be, there is always the factor of unreliability in the judgement of the evaluator because of his own biases.

According to Anthony (1968, p. 4) principals tend to consider the more experienced teacher as being more effective than the relatively new one, despite the fact that no criteria of effectiveness has been agreed upon. It is a common practice for principals to visit new teachers far more frequently than those with longer years of service.

Early attempts at some form of systematic observation began as far back as 1914 in a study by Horn. By systematic observation is meant the formalized systems of classifying, recording, and quantifying forms of teacher behaviours which occur in the classroom. As described by Murray (1970, p. 3) the systematic observation movement of today concerns itself with two main areas, a sign system and a category system. The sign system forces the observer to mark on a check list those behaviours that he sees during his observation period, while the category system consists of a discreet set of categories which have been designed to measure or classify classroom behaviour.

A detailed study that dealt with the problem of teacher effectiveness was conducted by Flanders in 1965. He used the ideas contained in earlier research dealing with systematic observations of such people as Anderson (1939), Withall (1949), and Bales (1950) to develop his own ten-category system which, in addition to assessing

what the teacher said and did, was used to assess what the student said and did in the interaction process. He also developed the concept of a matrix which allows the observational data to be more easily counted and sequenced together in instructional programs. In 1965, a review of the literature which utilized observational data as a measure of verbal behaviour was made by Amidon and Simon. They reported that by far the best known and most widely used interaction analysis system was the Flanders system. Ober (1970, p. 36), in using a modification of the Flanders system of interaction to construct his Reciprocal Category system, indicates that the greatest contribution of the Flanders system is yet to come, for interaction analysis stands as a "working model to stimulate the creation and development of newer and more powerful instruments . . . ". As one of his conclusions to his study Flanders (1965, p. 120) says:

The development of objective criteria and procedures to evaluate teacher effectiveness is a professional responsibility. The most rugged test of any procedure is an objective research program that not only provides evidence of the highest quality attainable, but also employs procedures that nearly all teachers can understand and use in a self-improvement program.

McAvoy (1970, p. 11) describes three types of criteria used in the classroom under a systematic observation approach to evaluation, namely, presage variables, process variables, and product variables.

Presage variables are measures of attitudes, interests, abilities, academic preparation, personality, and sex. Recent research has linked presage variables to actual teacher behaviours

in the classroom, and not to predicted behaviours as was earlier assumed (McAvoy, 1970, p. 10). Process variables are measures of behaviours, moods, or strategies employed by the teacher in the classroom. Product variables are measures of instructional outcomes, but research to date has not provided any conclusive evidence of which method of systematic observation is best to measure the accomplishments of goals and objectives in an instructional program (McAvoy, 1970, p. 11).

Mackay (1971, p. 16) used the above three categorizations to determine what criteria are actually used by administrators when evaluating teachers. In general, he found that process criteria were highly stressed. From a list of 30 criteria, the 174 principals engaged in his study selected the following five highest in rank order:

- 1) Energy, force, and enthusiasm of the teacher.
- 2) Class control.
- 3) Teacher-pupil relationships.
- 4) Concern with all-round development of pupils.
- 5) Academic qualifications and knowledge of the curriculum.

Mackay (1971) compared his findings with those of two conducted earlier in Australia. One was by Moore (1966), in which items were grouped under the three general areas of presage, process, and product before inspectors of schools were asked to indicate which they felt more important when evaluating teachers. He concluded quite emphatically that process criteria were emphasized far more than either presage or product criteria. The second study, by Thomas (1969), was very

similar to the one carried out by Moore (1966) but concentrated attention on the evaluative criteria used by high school principals. He analyzed his data and found that process criteria far outweighed the other two when teachers were being evaluated.

The values of the observer and where he stands in relation to important issues, educational or otherwise, have a very direct bearing on how he observes or judges. Does he, for instance, take into consideration the personal beliefs of the teacher he is rating? Just how much do the observer's beliefs and attitudes influence what he sees or does not see? Is dogmatism on the part of the principal a vital factor to be taken into account when he evaluates his teachers?

Dogmatism Studies

Following extensive research, a series of articles has been written on the phenomena of dogmatism by Rokeach (1952, 1954, 1956); Rokeach, McGovney, and Denny (1955), and Rokeach and Eglash (1956). Basically, Rokeach sees all cognitive systems as being organized into two interdependent parts--a belief system and a disbelief system. The structure of this belief-disbelief system is described as "varying along a continuum from open to closed" (Rokeach, 1954, p. 195). He further describes all belief-disbelief systems in terms of "the formal content of centrally located beliefs, especially those having to do with beliefs about authority and people in general" (Rokeach, 1954, p. 195). Following this line of thinking, Rokeach (1954, p. 195) describes dogmatism as follows:

a relatively closed cognitive organization of beliefs and disbeliefs about reality, organized around a central set of beliefs about absolute authority which, in turn, provides a framework for patterns of intolerance and qualified tolerance towards others.

A later definition of dogmatism is given by Rokeach (1960, p. 4) in his book entitled The Open and Closed Mind, in which he says:

a closed way of thinking which could be associated with any ideology regardless of content, an authoritarian outlook on life, an intolerance toward those with opposing beliefs, and a sufferance of those with similar beliefs.

The Open and Closed Mind is the result of an investigation into the nature of belief and personality systems. An attempt was made to measure the extent to which a person's mind is open or closed, and to determine the relationship between belief and thought. In order to consider the properties of belief systems Rokeach assumed that open and closed were the extremes along a continuum.

A basic definition of a person's belief-disbelief system as being open or closed is given by Rokeach (1960, p. 57) as follows:

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 arising from within the person or from outside.

'Open' individuals, according to Rokeach (1960, p. 57) differ from 'closed' individuals in the way they think, perceive, remember, and feel. Under these circumstances, those who are closed minded would tend to rate teachers differently from those principals who are open minded.

Throughout his research Rokeach (1960) refers to high dogmatic (closed) and low dogmatic (open) groups. This study does likewise, but also makes reference quite often to the middle group--those whose belief system is neither open nor closed.

A major point of departure for this research is the following assumption made by Rokeach (1960, p. 62):

We assume that the more closed the system, the more will the world be seen as threatening, the greater will be the belief in absolute authority, the more will other persons be evaluated according to the authorities they line up with, and the more will peripheral beliefs be related to each other by virtue of their common origin in authority, rather than by virtue of intrinsic connections.

Rokeach (1960, p. 63) views the open person as one who is more free in his outlook and more impervious to irrelevant pressures. The power of authority in a closed system depends on the ability to reward or punish; the open system depends upon "the authority's cognitive correctness, accuracy, and consistency with other information . . . about the world" (Rokeach, 1960, p. 63).

The distinction made by Rokeach (1960, p. 63) between the open and closed systems is tested in this research. An attempt has been made to see what effect dogmatism has on a principal when he is asked to select from his staff teachers whom he considers to be either very effective or not so effective at their jobs. Specifically, they were asked to select three whom they considered to be 'most effective' and three whom they considered 'least effective'.

Hypotheses were formed to see if dogmatism had any bearing at all on the principals' selections. Scores from a questionnaire, completed

by the principals and the selected teachers, were subjected to statistical testing. Two major hypotheses were (a) that the high dogmatic group of principals (closed minded) would tend to select as their most effective teachers those who were also rated high in dogmatism, and (b) that the low dogmatic group (open minded) would more than likely select their most effective teachers from a much wider range along the continuum for, as Rokeach (1960, p. 63) points out:

the more closed a person's belief system, the more he should evaluate others according to their agreement or disagreement with his own system: . . . conversely, the more open the belief system, the less should beliefs held in common be a criterion for evaluating others, and the more should others be positively valued, regardless of their beliefs.

By the same token, of course, the choice of the least effective teachers by the high dogmatic group of principals (closed minded) would more than likely be made from the opposite end of the continuum, while the low dogmatic group (open minded) would once again select from a wider range along the continuum.

Significant differences or relationships were also looked for between the following:

- a) the ages of the principal and his selected teachers,
- b) the number of male and female teachers selected as most effective and least effective,
- c) the number of years that the selected teachers have been with the principal and the actual selection made (most effective or least effective),

- d) the dogmatism scores of the principals and their ages, and
- e) the dogmatism scores of the principals and the number of years that they have held their appointments.

It is possible that new theoretical models for the evaluation of teachers will emerge during the next few years, and some of these might help to dispel the impression held by many teachers that evaluation of any kind is not only an unfair process but also a threatening one. This study is intended to complement other research by looking into one of the existing techniques used in the Greater Victoria School District, namely, a written report without the aid of a rating scale. It is an attempt to explore the extent to which the variables of attitudes and beliefs influence principals' ratings of teachers.

Summary

The available literature on the process of evaluation, though somewhat extensive, has little to say about the attitudes and beliefs of the evaluator. Consequently, the theories put forward by Rokeach (1960) concerning the relationship between open and closed mindedness and evaluation have not been tested to any extent over the past ten years. Studies that have dealt with dogmatism have been more concerned with its relationship to learning and performance rather than to evaluation (e.g. Zagona and Zurcher, 1965; White and Alter, 1967).

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CHAPTER III
DESIGN OF STUDY

Instrumentation

The instrument used in this research was Rokeach's Dogmatism Scale, designed to measure individual differences in openness or closedness of belief systems. A belief system, by Rokeach's definition, includes 'a person's beliefs, as inferred from all that he says and does, and regardless of whether they are so perceived by the person himself' (Rokeach, 1960, p. 34).

Since its publication some fifteen years ago, the Dogmatism Scale has gone through a number of revisions in order to increase reliability. Form E, the final form, was the one used in this study (see Appendix A). It contained 40 items, 21 of which were used for the first time in Form D, with the remaining 19 coming from earlier forms. The criteria used as a basis for selection of items for Form E was as follows (Rokeach, 1956, pp. 16-17):

- (a) Items used for the first time in Form D were eliminated if they discriminated relatively poorly between high and low dogmatic groups when subjected to item analysis.
- (b) Items used in earlier forms were eliminated if they did not discriminate consistently well.
- (c) Items should represent, in approximately equal numbers, the structure, formal content, and the function of dogmatism.
- (d) Items should be devoid of content specific to any ideological orientations but should have maximum theoretical coverage.
- (e) Aside from the issue of external validity, each item should have

'face validity', that is, its content should be directly relevant to the conceptual definition of dogmatism.

As with the earlier scales, Form E required subjects to indicate agreement or disagreement with each item by scale ranging from +3 to -3, excluding the zero point. Interpretation of the scale is as follows:

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

For scoring purposes, the scale was converted to a 1 to 7 scale by adding a constant of 4 to each item score. The total score is the sum of scores obtained on all items on the scale (Rokeach, 1960, p. 88).

Reliability of the Dogmatism Scale

Rokeach's Dogmatism Scale has gone through five revisions, each designed to take advantage of continuing refinements in theoretical formulations, and to increase reliability.

Table 1 shows the reliabilities for all forms of the Dogmatism Scale. The Roman numerals in Table 1 refer to the different samples that were tested in the same university or college.

The original 57 items of Form A were subjected to item analysis and 14 items were eliminated to obtain Form B. An item analysis on Form B eliminated a further seven items. The remaining 36 items constituted Form C. The reliability figures for Form C, shown in Table 1, were somewhat lower than anticipated (Rokeach, 1960, p. 89), resulting in 30 new items being added to make Form D. The 66 items of Form D had a

reliability figure of .91 (see Table 1), but a further item analysis eliminated 26 items from Form D to leave the final Form E with 40 items (see Appendix A). The various reliability figures for Form E are shown in Table 1.

The samples used for obtaining the initial reliability data came from three areas differing in social climate--the Midwest of the United States, New York, and England. In the Midwest, the subjects were students from three universities: Michigan State University, where a group of students taking beginning courses in psychology was used, Purdue University, and Ohio State University. In New York, a group of destitute veterans living in a Veterans Administration domiciliary were invited to participate. In England, samples were obtained from two colleges, University College in London and Birkbeck College, and from workers in an automobile factory, Vauxhall Motors.

With the exception of two groups, all the reliabilities reported in Table 1 are odd-even reliabilities, corrected by the Spearman-Brown formula. The exceptions are the Ohio State University V and the .84 reliability for the Veterans Administration group. Reliabilities for these two were obtained by a test-retest, with five to six months between tests for the Ohio State group, and a month between tests for the veterans' group.

The author tends to agree with Rokeach (1960, p. 90) that the reliability figures shown in Table 1 are quite satisfactory when one considers that the Dogmatism Scale contains a strange collection of items that cover a lot of territory and appear on the surface to be unrelated to each other. Furthermore, the consistency of agreement or disagreement with the items on the scale has been shown by item analyses

TABLE 1

Reliabilities, Means, and Standard Deviations of Successive Forms of the Dogmatism Scale ‡

Form	No. of Items	Group	No. of Cases	Reliability	Mean	S.D.	
A	57	Michigan State U.	I	202	.70	182.5	26.2
B	43	New York Colleges		207	.75	141.4	27.2
C	36	Michigan State U.	II	153	.73	126.9	20.1
		Michigan State U.	III	186	.71	128.3	19.2
		Purdue U.		171	.76		
D	66	English Colleges	I	137	.91	219.1	28.3
E	40	English Colleges	II	80	.81	152.8	26.2
		English Workers		60	.78	175.8	26.0
		Ohio State U.	I	22	.85	142.6	27.6
		Ohio State U.	II	28	.74	143.8	22.1
		Ohio State U.	III	21	.74	142.6	23.3
		Ohio State U.	IV	29	.68	141.5	27.8
		Ohio State U.	V	58	.71 *	141.3	28.2
						143.2	27.9
		Michigan State U.	IV	89	.78		
		V. A. Domiciliary		80		183.2	26.6
				24	.93		
				17	.84 *		

(Rokeach, 1960, p. 90)

- ‡ Notes: 1. Asterisk refers to results obtained by test-retest.
 2. All other figures in reliability column refer to odd-even data.
 3. Absence of data in some columns not explained by Rokeach (1960).

(Rokeach, 1956, pp. 16-17). These analyses compared subjects scoring in the upper and lower quarters of the frequency distribution on each of the items. Rokeach (1960, p. 90) says:

They typically show that high and low dogmatic subjects differ constantly and in a statistically significant manner on the great majority of items.

The means that are shown in Table 1 are not comparable because the number of items differs from one form to the next.

Validity of the Dogmatism Scale

To find out whether the Dogmatism Scale actually measured what it was supposed to, Rokeach tested it on people who were known, on other grounds, to be open or closed in their belief systems, a procedure generally known as the Method of Known Groups. Two groups of people were invited to select friends and acquaintances whom they considered to be very dogmatic, or vice versa. To help them make their selections, the selectors were given a brief outline describing certain characteristics of persons with open and closed belief systems, e.g., closed mind--uncritical acceptance of authority, rejection of those who disagree, qualified acceptance of those who agree.

In Study One, the group of selectors were members of the graduate faculty of the College of Science and Arts at Michigan State University. Their selections were made from graduate students whom they knew personally and whom they considered to be either high or low in dogmatism. The selected students were then given the following scales to complete, all of which are designed to measure some form of general authoritarianism or general intolerance:

- (a) The Dogmatism Scale.
- (b) The California F. Scale, a personality scale that has been used

many times over the past years (Christie and Cook, 1958).

(c) The Opinionation Scale, which serves as a measure of general intolerance and which, like the Dogmatism Scale, has undergone many revisions (Rokeach, 1960).

(d) The California Ethnocentrism Scale, Form E (Adorno, Frenkel-Brunswick, Else, Levinson, & Sanford, 1950).

On all four tests the two selected groups obtained highly similar means, and whatever differences were found among them were small and inconsistent in direction (Rokeach, 1960, p. 102).

In Study Two, a group of psychology students were asked to select high and low dogmatic subjects from outside the field of psychology. The criteria for selection was the same as that given to the professors in Study One, and the same four scales were given to the selected subjects. It was found that the two selected groups differed greatly in mean dogmatism scores (see Table 2), with the high dogmatic group scoring about 56 points more than the low dogmatic group. Rokeach had anticipated that if the high dogmatic group scored higher on the Dogmatism Scale than the low dogmatic group, they would also score higher on the other three scales. Table 3 confirmed his expectations.

TABLE 2

Comparison between High and Low
Dogmatic Groups on the Dogmatism Scale
N = 20

High Dogmatic Mean	S.D.	Low Dogmatic Mean	S.D.	Difference
157.2	27.9	101.1	33.8	56.1 (b)

(b) significant: $p = .01$ (Rokeach, 1960, p. 104)

TABLE 3

Comparison between High and Low Dogmatic Groups
on the F and Ethnocentrism Scales

N = 20

	High Dogmatic		Low Dogmatic		Difference
	Mean	S.D.	Mean	S.D.	
E Scale	116.1	23.4	68.7	26.1	47.4 (b)
F Scale	54.6	27.6	34.9	13.5	19.7 (c)
Opinionation (total)	142.3	20.3	102.9	36.2	39.4 (b)

(b) significant: $p = .01$ (c) significant: $p = .05$

(Rokeach, 1960, p. 104)

In order to convince himself that the differences reported in Tables 2 and 3 could not be attributed to the selection of subjects by any means other than their being considered high or low in dogmatism, (e.g., age, education, or intelligence), Rokeach produced the statistics shown in Table 4, where it can be seen that the differences between the high and low dogmatic groups in age, education, and intelligence are quite small. Statistically, they are not significant.

TABLE 4

Mean Age, Years of Education, and Intelligence Test Scores
of Persons Judged High and Low in Dogmatism

N = 20

Group	Age	Education	Intelligence
High Dogmatic	25.6	14.9	32.8
Low Dogmatic	27.1	15.6	36.1

(Rokeach, 1960, p. 105)

From the results of Study Two, Rokeach concluded that it was possible for judges to select people from everyday life on the basis of their being open or closed in their belief systems, and that the Dogmatism Scale, along with the others, could be used to identify the persons so selected with considerable validity. Rokeach gives as a reason for the negative findings in Study One the 'masking effect' on the professor's judgement produced by the professor-student relationship. If such a factor exists, it is unlikely to be applicable to the present study because a principal-teacher relationship is undoubtedly a very different situation to a professor-student relationship.

Hypotheses and Questions

Although the Dogmatism Scale contains a variety of statements dealing with many subject areas (Rokeach, 1960, pp. 73-80), item analyses have shown that individuals agree or disagree with the items on the scale in a consistent manner (Rokeach, 1956, pp. 16-17). The following hypotheses, stated in the null form, are based on the assumption made by Rokeach (1960, p. 63) that the more closed a person's belief system becomes, the more he will tend to reject those who disagree with him, and the more he will tend to accept others because they agree with him.

Major Hypotheses

Hypothesis 1

There will be no significant difference between the Dogmatism scores of the most effective teachers selected by the High, Middle, and Low Dogmatism groups of principals.

Hypothesis 2

There will be no significant difference between the Dogmatism scores of the least effective teachers selected by the High, Middle, and Low Dogmatism groups of principals.

Hypothesis 3

There will be no significant relationship between the selection of most effective and least effective teachers by the High Dogmatic groups of principals and the Dogmatism scores obtained by those teachers.

Hypothesis 4

There will be no significant relationship between the selection of most effective and least effective teachers by the Low Dogmatic group of principals and the Dogmatism scores obtained by those teachers.

Secondary Hypotheses

The following secondary hypotheses, all of an exploratory nature, will attempt to determine whether a relationship exists between a principal's dogmatism score and (a) his age, (b) the number of years he has been a principal, and (c) the age and sex of the teachers selected by him as most effective and least effective.

Hypothesis 5

There will be no significant relationship between the Dogmatism scores of the principals and the number of years they have held their appointments.

Hypothesis 6

There will be no significant relationship between the Dogmatism scores of the principals and their ages.

Hypothesis 7

There will be no significant relationship between the ages of the High Dogmatic group of principals and the ages of the teachers selected by them as most effective.

Hypothesis 8

There will be no significant relationship between the ages of the High Dogmatic group of principals and the ages of the teachers selected by them as least effective.

Hypothesis 9

There will be no significant relationship between the ages of the Low Dogmatic group of principals and the ages of the teachers selected by them as most effective.

Hypothesis 10

There will be no significant relationship between the ages of the

Low Dogmatic group of principals and the ages of the teachers selected by them as least effective.

Hypothesis 11

There will be no significant difference between the number of males and females selected as most effective by the High Dogmatic group of principals.

Hypothesis 12

There will be no significant difference between the number of males and females selected as most effective by the Low Dogmatic group of principals.

Hypothesis 13

There will be no significant difference between the number of males and females selected as least effective by the High Dogmatic group of principals.

Hypothesis 14

There will be no significant difference between the number of males and females selected as least effective by the Low Dogmatic group of principals.

Questions

In addition to the major and secondary hypotheses listed above, this study will attempt to answer the following two questions concerning the length of time that principals and teachers have been working together. They are merely exploratory questions inasmuch that they do not lend themselves to precise statistical analysis. It could be argued that a principal tends to regard long-standing teachers on his staff as loyal staff members. Seniority is often considered a basis for reward. The answers to the questions posed below may show whether years of

teaching experience under one principal and teaching effectiveness are related.

Question 1

Is there any relationship between the number of years that a principal has held his appointment in Victoria and the number of years that the teachers selected by him as most effective have been under his supervision?

Question 2

Is there any relationship between the number of years that a principal has held his appointment in Victoria and the number of years that the teachers selected by him as least effective have been under his supervision?

Population

The study was conducted in the Greater Victoria School District (District 61). Fifteen secondary schools (junior and senior) and thirty-two elementary schools, all having ten or more teachers on staff, were invited to participate in the study although it was anticipated that some would not wish to do so.

An attempt was made by the researcher to visit the principals of the participating schools to familiarize them with the purpose and method of the research, so that they would be in a position to answer questions arising from their staff members. In a few cases, a telephone conversation was held with the principal in lieu of a personal visit. The response in the schools was far better than had been anticipated-- of the forty-seven schools contacted, forty-six agreed to participate. Internal school complications resulted in principals of two schools later requesting to withdraw from the study, and one school was excluded because of a

blank questionnaire return from the principal. This left a total of forty-three schools taking part, involving 1,145 teachers and principals (see Table 5).

TABLE 5
Summary of Questionnaire Distribution

Type of School	No. of Schools	No. of Teachers	No. of Principals	Total
Elementary	31	583	31	614
Secondary	13	518	13	531
Total	44	1101	44	1145

Design

Copies of Rokeach's Dogmatism Scale (see Appendix A) were prepared for distribution to the schools, and to each copy a return envelope was attached. A label on each envelope read:

Questionnaire return. Please seal in envelope and return to your principal or someone appointed by him. Thank you for your cooperation.

A letter was also prepared for distribution to the teachers, the purpose of which was to briefly outline the nature of the study and to solicit their cooperation. A copy of this letter will be found in Appendix B. It also gave them assurance that their anonymity would be safeguarded.

The principal was asked to help with the study in the following manner:

- (a) Give to each teacher on his staff a copy of the letter inviting him

to help with the study.

(b) Assign to each member of his staff a number, prefixed by the code letter given to the school by the researcher. The principal will be asked to keep a careful copy of the numbers he assigns.

(c) One or two days after giving out the 'letters of invitation', hand a questionnaire to each teacher, making sure that the teacher's code letter and number have first been placed at the top of page 1.

(d) Complete a questionnaire himself, marking it with the school code letter followed by the letter "P". This will identify the form as that belonging to the principal of the school.

(e) Arrange for the collection of the sealed envelopes from his teachers and return them, unopened, to the researcher.

(f) When asked at a later date, complete a form indicating by code letter and number only three teachers whom he considers to be the most effective in his school and three whom he considers to be least effective. The form will also require (a) an age category of the principal and the teachers whom he selects, e.g., 35-40, 40-45, etc., and (b) the number of years the selected teachers have been under the supervision of the principal making the report. For the purpose of selecting the most effective and least effective teachers, the principal will not be provided with a rating scale but may use any method he desires to arrive at his decision.

Data Collection

The principals were contacted by the researcher during October, 1970, and the questionnaires, envelopes, and letters were handed to him for distribution to their staffs. Deadline for collection of questionnaires was December 1, 1970. During December, the principals received

the forms on which they were asked to indicate by code number the three most effective and the three least effective teachers.

Data Analysis

As this research was primarily concerned with general relationships and associations, the various contingency tables that were prepared were subjected to testing for significance by using chi-square. In some cases, tests were carried out separately on elementary and secondary data before combining. Yates (1934, pp. 217-235) corrections were used where applicable.

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CHAPTER IV

RESULTS AND INTERPRETATIONS OF TABLES

By December 1, 1970, 826 completed and usable returns were received. Eighteen more following during the month of January, 1971, making a total of 844, representing 73.7% of the original number distributed.

Responses on each questionnaire were converted to a raw score by adding a constant of 4 to each item's response and totalling. Scores were then placed on a continuum and, following the procedure indicated by Rokeach (1956, p. 17), a 27% cut-off was made at the extreme ends to determine the high and low dogmatic groups. For the purpose of this study, the dogmatism scores that fell between the extremes were considered to be representative of a middle dogmatism group. The frequency distribution of the dogmatism scores are shown in Appendix C.

Table 6 gives a summary of the questionnaire returns.

TABLE 6

Summary of Usable Questionnaire Returns

Type of School	Returns		Total	Returns %
	from Teachers	from Principals		
Elementary	474	30	504	82.1
Secondary	327	13	340	64.0
Total	801	43	844	73.7

Table 7 shows the range of scores for each of the three dogmatism groupings.

TABLE 7
Range of Scores for each Dogmatism Group
N = 844

Groups	Range	
	Low	High
High Dogmatism	152	208
Middle Dogmatism	118	151
Low Dogmatism	51	117

The four major and twelve secondary null hypotheses are listed by number in Table 8, and where significance was established after subjecting the data to chi-square testing, the probability level is indicated.

The results shown in Table 8 apply to the combined data, i.e., data collected from elementary and secondary schools where cell frequencies, both obtained and observed, were of a more reliable nature than when the data was treated separately for elementary and secondary schools.

By referring to Table 8, it can be seen that significance was found to be great enough to reject the four major null hypotheses and five of the secondary null hypotheses.

TABLE 8

List of Hypotheses and Results after Testing

Hypothesis	Variables Tested	Results	Probability Level
<u>Major</u>			
1	Dogmatism scores of principals and most effective teachers	sig.	.05
2	Dogmatism scores of principals and least effective teachers	sig.	.01
3	Dogmatism scores of the most and least effective teachers who were selected by the high dogmatism group of principals	sig.	.05
4	Dogmatism scores of the most and least effective teachers who were selected by the low dogmatism group of principals	sig.	.05
<u>Secondary</u>			
5	Years of principalship and principals' dogmatism scores	n/sig.	
6	Ages and dogmatism scores of principals	n/sig.	
7	Ages of most and least effective teachers who were selected by the high dogmatism group of principals	sig.	.05
8	Ages of most and least effective teachers who were selected by the low dogmatism group of principals	n/sig.	
9	Ages of high dogmatism group of principals and ages of most effective teachers	n/sig.	
10	Ages of high dogmatism group of principals and ages of least effective teachers	n/sig.	
11	Ages of low dogmatism group of principals and ages of most effective teachers	n/sig.	

Hypothesis	Variables Tested	Results	Probability Level
12	Ages of low dogmatism group of principals and ages of least effective teachers	n/sig.	
13	Number of males and females selected as most effective teachers by the high dogmatism group of principals	sig.	.01
14	Number of males and females selected as most effective teachers by the low dogmatism group of principals	sig.	.01
15	Number of males and females selected as least effective teachers by the high dogmatism group of principals	sig.	.01 *
16	Number of males and females selected as least effective teachers by the low dogmatism group of principals	sig.	.05

* after Yates correction

Hypothesis 1

Table 9 shows the distribution, by dogmatism groupings, of the teachers selected by the principals as most effective (expected frequencies for this and following tables are shown in brackets beside the observed frequencies).

It can be seen that the principals who were rated high in dogmatism tended to select from the high and middle groups for their most effective teachers. Selection by the low dogmatism group of principals, while on a much wider range, shows a slight preference for their own group. A definite pattern of selection can be seen if the differences between the observed and expected frequencies are studied, when it can be seen that the high and low dogmatism groups of principals tend to select as their most effective teachers those who fall into dogmatism categories

similar to their own.

TABLE 9
Principals' selection of the most effective
teachers by dogmatism groupings

Principals' Dogmatism Group	Most Effective Teachers' Dogmatism Group			Total
	High	Middle	Low	
High	18 (11.5)	17 (16.3)	4 (11.2)	39
Middle	9 (14.1)	22 (20.1)	17 (13.8)	48
Low	11 (12.4)	15 (17.6)	16 (12.0)	42
Total	38	54	37	129
	$X^2 = 12.97$	$df = 4$	$p = .05$	

The middle dogmatism group of principals is inclined to lean towards the low dogmatism group of teachers rather than the high dogmatism group when making their most effective teacher selections from groups other than their own. A X^2 value of 12.97, with four degrees of freedom, is significant at the .05 level. Hypothesis 1, therefore, was rejected.¹

Hypothesis 2

Table 10 shows the principals' selection of the least effective teachers, arranged by dogmatism groupings.

1 A X^2 test was also performed on the High and Low groups only in Table 9. It also resulted in the null hypothesis being rejected, but at the .01 level of significance.

In making this selection, the high dogmatism group of principals showed a most interesting pattern by choosing mainly from the extreme ends of the continuum. The differences between the observed and expected frequencies were strong enough to indicate a slight edge in favour of selecting 'low', but not as much as might have been expected.

TABLE 10

Principals' selection of the least effective teachers by dogmatism groupings

Principals	Teachers			Total
	High	Middle	Low	
High	15 (12.4)	8 (16.6)	16 (10.0)	39
Middle	11 (15.3)	25 (20.4)	12 (12.2)	48
Low	15 (13.3)	22 (18.0)	5 (10.7)	42
Total	41	55	33	129
	$\chi^2 = 15.07$	$df = 4$	$p = .01$	

The low dogmatism group of principals tends to select from the high and middle groups for their least effective teachers, while the middle dogmatism group of principals tends to make their selections from their own group. The null hypothesis was rejected at the .01 level of significance.

The findings of the first two hypotheses indicate that principals tend to select as their most effective teachers those with beliefs similar to their own. The selection of the least effective teachers,

however, is not necessarily made from those holding dissimilar beliefs to the principals making the selection. The suggestion made by Rokeach (1960, p. 58) that the open minded principal would be less likely to use his own criterion for evaluating others is not substantiated by these findings. Furthermore, the fact that the closed minded principals selected many of their least effective teachers from the high dogmatism group does not support Rokeach's (1960, p. 58) suggestion that the choice would be made in this instance from those holding dissimilar beliefs.

Hypothesis 3

Table 11 shows the dogmatism groupings of the teachers who were selected as either most effective or least effective by the high dogmatism group of principals.

TABLE 11

Dogmatism groupings of most effective and least effective teachers selected by the high dogmatism group of principals

Teachers' Dogmatism Group	Selection		Total
	Most Effective	Least Effective	
High	18 (16.5)	15 (16.5)	33
Middle	17 (13.0)	8 (12.0)	25
Low	4 (9.5)	16 (10.5)	20
Total	39	39	78
	$\chi^2 = 9.1$	<u>df</u> = 2	p = .05

The pattern of selection is shown fairly clearly, although the high

dogmatism group of teachers is almost equally distributed between the most effective and least effective groupings, with only a slight preference in the former category. The middle and low dogmatism groups make interesting comparisons. In the middle group, the greater majority falls into the most effective teacher category. In the low group, the greater majority falls into the least effective teacher category. The differences between the observed and expected frequencies, particularly in the middle and low dogmatism groups, clearly show the pattern of selection, where the most effective teachers tend to be selected from the high and middle dogmatism groups, but the least effective teachers appear to be selected from the two extremes of dogmatism groupings.

The theory of 'like' approving 'like' is challenged to some extent by the findings shown in Table 11. Thirty-three teachers, rated high in dogmatism, were almost evenly distributed by the high dogmatism group of principals into the most effective and least effective groups.

The null hypothesis was rejected at the .05 level of significance. By considering the high and low dogmatism scores only, a X^2 value of 5.44 was established ($df = 1$), which rejected the null hypothesis at the same level of significance.

Hypothesis 4

Table 12 shows the dogmatism groupings of the teachers who were selected as either most effective or least effective by the low dogmatism group of principals, the pattern of which is almost the opposite to that of Table 11. Here the selection of most effective teachers is made mostly from the low dogmatism group, while the reverse end of the scale is used for selection of the least effective teachers. The null hypothesis was rejected at the .05 level of significance.

TABLE 12

Dogmatism groupings of most effective and least effective teachers selected by the low dogmatism group of principals

Teachers' Dogmatism Group	Selection		Total
	Most Effective	Least Effective	
High	11 (13.5)	15 (12.5)	26
Middle	15 (18.0)	22 (19.0)	37
Low	16 (10.5)	5 (10.5)	21
Total	42	42	84
	$\chi^2 = 7.69$	$df = 2$	$p = .05$

The findings of hypotheses 3 and 4 again challenge the statements made by Rokeach (1960, p. 58). The closed minded principals do not entirely select their least effective teachers from those with dissimilar beliefs, neither do the open minded principals show the expected range of selection when choosing their least effective teachers but tend to adopt the idea of 'like' disapproving 'unlike' by selecting from the opposite end of the continuum.

Hypothesis 7

Table 13 shows the distribution into two age groups of the teachers selected as most effective and least effective by the high dogmatism group of principals. The most effective teachers tend to fall into the age category of 45 and below, while the least effective teachers tend to be selected from those of 46 and over.

TABLE 13

Age distribution of teachers selected as most effective and least effective by the high dogmatism group of principals

Teachers' Ages	Selection		Total
	Most Effective	Least Effective	
45 and under	27 (22.5)	18 (22.5)	45
46 and over	12 (16.5)	21 (16.5)	33
Total	39	39	78
	$\chi^2 = 4.25$	<u>df</u> = 1	p = .05

The hypothesis was rejected at the .05 level of significance.

If the numbers of teachers selected as most effective and least effective are converted into percentages and compared with the information shown in Table 14, it can be seen that 61.2% of the teachers who participated in the study are in the age category of 45 and under, which is a slightly lower figure than the 69.2% who were selected as most effective from the same age group (Table 13: 27 out of 39 = 69.2%). From the 46 and over group, 30.8% were selected as most effective (12 out of 39) as against the 38.8% participating in the study.

In the least effective teacher selections, the differences are much greater. 46.2% (18 out of 39) were selected from the 45 and under age category, and 53.8% from the 46 and over group (21 out of 39). Comparing these percentages with the 61.2% and 38.8% shown in Table 14, it can be seen that there is a tendency for the high dogmatism group of principals to select from the upper age group for their least effective teachers.

TABLE 14
Age category and sex of teachers employed
in the 43 participating schools

	Male		Female		Total	%
	Elem- entary	Secon- dary	Elem- entary	Secon- dary		
45 and under	124	198	254	98	674	61.2
46 and over	41	138	164	84	427	38.8
Total	165	336	418	182	1101	100

Hypothesis 8

By comparison, Table 15 shows the distribution into two age groups of the teachers selected as most effective and least effective by the low dogmatism group of principals. No significant difference was found and $H_0 8$ was accepted, but the information contained in Table 15 should also be compared with that in Table 14.

TABLE 15
Age distribution of teachers selected as most effective and
least effective by the low dogmatism group of principals

Teachers' Ages	Selection		Total
	Most Effective	Least Effective	
45 and under	25 (27)	29 (27)	54
46 and over	17 (15)	13 (15)	30
Total	42	42	84
	$\chi^2 = .83$	<u>df</u> = 1	

The percentage figures for the two groups of most effective teachers in Table 15 are as follows:

45 and under: 59.5% (25 out of 42)

46 and over : 41.5% (17 out of 42)

These figures are very close indeed to the 61.2% and 38.8% for the two age groups shown in Table 14.

For the two age groups of least effective teachers in Table 15, the percentages are:

45 and under: 69% (27 out of 42)

46 and over : 31% (13 out of 42)

Again, these figures are not too far away from the 61.2% and 38.8% for the two age groups as shown in Table 14.

By making comparisons of Tables 13 and 15 with Table 14, it appears that the low dogmatism group of principals shows a very slight trend towards the 45 and under age group when selecting their least effective teachers, but the high dogmatism group of principals indicated a marked preference for the 46 and over group when making their selections of least effective teachers. Very little difference exists in the selection of the most effective teachers by both the high and low dogmatism groups of principals.

Hypotheses 13 and 14

Table 16 shows the distribution of male and female teachers selected as most effective by two high dogmatism groups of principals, one from the elementary schools and one from the secondary schools. Table 17 shows a similar distribution but with selections being made by the low dogmatism groups of principals.

TABLE 16

Distribution of male and female teachers selected
as most effective by the high dogmatism group of principals

	Most Effective Teachers		Total
	Male	Female	
Elementary Principals	8 (11.8)	19 (15.2)	27
Secondary Principals	9 (5.2)	3 (6.8)	12
Total	17	22	39
	$\chi^2 = 7.07$	<u>df</u> = 1	p = .01

TABLE 17

Distribution of male and female teachers selected
as most effective by the low dogmatism group of principals

	Most Effective Teachers		Total
	Male	Female	
Elementary Principals	10 (14.1)	17 (12.9)	27
Secondary Principals	12 (7.9)	3 (7.1)	15
Total	22	20	42
	$\chi^2 = 6.99$	<u>df</u> = 1	p = .01

Both tables show that the tendency to select female teachers in the elementary schools is offset by the tendency to select males in the secondary schools. χ^2 values of 7.07 and 6.99 respectively were sufficient to warrant rejection of hypotheses 13 and 14 at the .01 level of significance.

Hypotheses 15 and 16

Table 18 shows the distribution of male and female teachers selected as least effective by two high dogmatism groups of principals, one from the elementary schools and one from the secondary schools.

TABLE 18

Distribution of male and female teachers selected as least effective by the high dogmatism group of principals

	Least Effective Teachers		Total
	Male	Female	
Elementary Principals	5 (9.7)	22 (17.3)	27
Secondary Principals	9 (4.3)	3 (7.7)	12
Total	14	25	39
$\chi^2 = 9.23$ (with Yates correction) <u>df</u> = 1 p = .01			

Table 19 shows a similar distribution but with selections being made by the low dogmatism group of principals. As with the selection of the most effective teachers (Tables 16 and 17) the tendency here is again for the principals in the elementary schools to select female teachers and in the secondary schools to select males, regardless of whether the principal making the selection is high or low in dogmatism.

TABLE 19

Distribution of male and female teachers selected as least effective by the low dogmatism group of principals

	Least Effective Teachers		Total
	Male	Female	
Elementary Principals	6 (9)	21 (18)	27
Secondary Principals	8 (5)	7 (10)	15
Total	14	28	42
	$\chi^2 = 4.2$	$df = 1$	$p = .05$

Yates correction was applied to the data in Table 18, where one of the cells has an expected frequency of less than 5 (Maxwell, 1961, p. 21). The corrected χ^2 value was 9.2, showing significance at the .01 level. The χ^2 value for Table 19 was found to be 4.2, significant at the .05 level. Both null hypotheses 15 and 16 were rejected.

Tables 16 through 19 may be compared with the information contained in Table 14, where the distribution of teachers participating in this study is shown according to sex. Of the 583 elementary teachers taking part, 28.3% were male (165 out of 583) and 71.7% female (418 out of 583). These percentages may be compared with the percentages of male and female teachers selected as most effective and least effective by the elementary principals, as shown in Table 20.

Male teachers selected as most effective by both dogmatism groups of principals exceed the overall figure of 28.3% for male participants in this study, but fall short of this figure when the least effective

TABLE 20

Sex of most effective and least effective teachers selected
by elementary principals, shown as percentages

Selected Teachers	Principals' Dogmatism Group	% Selection	
		Male	Female
Most Effective	High	29.6	70.4
Most Effective	Low	37.0	63.0
Least Effective	High	18.5	81.5
Least Effective	Low	22.2	77.8

teachers are selected. Consequently, the percentage of females selected as most effective is less than the overall figure of 71.7%, but more when least effective teachers are selected. The findings in Table 20 tend to support the results of Tables 16 through 19, where a significant difference was found between the number of male and female teachers selected as most effective or least effective by the principals.

Table 21 shows a similar distribution for secondary schools, where 64.9% of the 518 participating teachers were males and 35.1% females.

TABLE 21

Sex of most effective and least effective teachers selected
by secondary principals, shown as percentages

Selected Teachers	Principals' Dogmatism Group	% Selection	
		Male	Female
Most Effective	High	75.0%	25.0%
Most Effective	Low	80.0%	20.0%
Least Effective	High	75.0%	25.0%
Least Effective	Low	53.3%	46.7%

An almost identical pattern to the elementary principals' selections can be seen in the secondary schools. Again, the percentage of male teachers selected as most effective exceeds the overall figure of 64.9% for male secondary teachers who participated in this study. In selecting the least effective teachers, the high dogmatism group of principals chose 75.0% males but only 53.3% were chosen by the low dogmatism group of principals.

The selection of 46.7% females as least effective by the low dogmatism group of principals is a higher percentage than the overall 35.1% for female secondary teachers who participated in this study. By the same token, the percentage of most effective female teachers is lower than the overall 35.1%. In general, the findings in Table 21, as in Table 20, tend to support the findings shown in Tables 16 through 19, where significant differences were found between the number of male and female teachers selected as most effective and least effective by the principals.

Tables 22 through 27, showing the data and results of chi-square testing for the remaining six null hypotheses, appear in Appendix D. Briefly, the results were as follows:

Ho 5 (Table 22) -	$\chi^2 = 2.73$	<u>df</u> = 4
Ho 6 (Table 23) -	$\chi^2 = .06$	<u>df</u> = 1
Ho 9 (Table 24) -	$\chi^2 = 1.30$	<u>df</u> = 1
Ho 10 (Table 25) -	$\chi^2 = 1.92$	<u>df</u> = 1
Ho 11 (Table 26) -	$\chi^2 = .04$	<u>df</u> = 1
Ho 12 (Table 27) -	$\chi^2 = .16$	<u>df</u> = 1

No significant relationship was found to exist between the dogmatism scores of the principals and the number of years since their appointment to a principalship (Ho 5) nor between their scores and their ages (Ho 6).

When the ages of the principals were compared with the ages of the teachers selected as most effective or least effective, no significance was found regardless of whether the principals making the selections were rated high or low in dogmatism (Ho 9 through Ho 12).

In an attempt to answer the two earlier questions raised in this study concerning the number of years that a principal has held his appointment in Victoria and the number of years that the teachers selected by him as most or least effective have been under his supervision, Tables 28 and 29 were constructed to see if any relationship could be determined by observation, as neither Table lent itself to statistical evaluation.

TABLE 28

Number of years principals have held appointments in Victoria
and the number of years that teachers selected as most
effective have been under their supervision

		Most Effective Teachers							
		Number of Years with Principal							
		1 - 2	3 - 4	5 - 6	7 - 8	9 -10	11-12	13-14	15-16
Principals' Appointments in Years	1- 2	15							
	3- 4	15	21						
	5- 6	8	3	4					
	7- 8		4	2					
	9-10	2	3	3		1			
	11-12	2	1		3				
	13-14	2		1		1	1	1	
	15-16	5	4	1		1	1		
	17-18								
	19-20								
	21-22	2	2	1			1		
	23-24								
	25-26	1	2	1	1	1			
	27-28		2	1					
	29-30	2	3	2		1			1

TABLE 29

Number of years principals have held appointments in Victoria
and the number of years that teachers selected as least
effective have been under their supervision

	Least Effective Teachers							
	Number of Years with Principal							
	1 - 2	3 - 4	5 - 6	7 - 8	9 -10	11-12	13-14	15-16
1- 2	15							
3- 4	20	16						
5- 6	8	4	3					
7- 8	4	2						
9-10	4	2	1		2			
11-12	3	1	2					
13-14	3	1			1	1		
15-16	7	2		3				
17-18								
19-20								
21-22	1	3	1			1		
23-24								
25-26	2	1		1	2			
27-28	1		2					
29-30	3	3	1	1				1

The data shown in both of the above tables may be slightly misleading because those principals who have been in Victoria for less than two years are, of course, restricted in their selection of most and least effective teachers to the same period of time. However, one observation

can be made if those with two years or less experience as either teacher or principal are omitted from Table 28. It would appear that in the selection of the most effective teachers there is no relationship between the number of years the principal has held his appointment and the number of years that the selected teachers have been with him.

Another noticeable fact in Table 28 is that of the teachers selected as most effective by principals whose appointments in Victoria were made more than two years ago, 73% have been with the principals for only four years or less. Separating the principals whose appointments were made more than ten years ago, almost 60% of their most effective teachers still come from those who have been with them for four years or less.

In Table 29, identical in arrangement to Table 28 except for the substitution of least for most effective teacher, a similar picture emerges. Of the teachers selected as least effective by principals whose appointments in Victoria were made more than two years ago, almost 80% have been with the principals for four years or less. Those principals whose appointments were made more than ten years ago selected almost 65% of their least effective teachers from among those who have been on their staff for four years or less.

It would appear that the longer a teacher remains with a principal, the less likely he is to be regarded as either effective or ineffective. However, there are certain limitations to this speculation which will be discussed in the next chapter.

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CHAPTER V

SUMMARY AND DISCUSSION

The findings of this study have relied heavily on the claim made by Rokeach (1960, p. 19) that the Dogmatism Scale is a measure of the extent to which the belief system is an open or a closed one. Although reliability and validity of the scale have already been discussed in Chapter III, mention must be made here that the scale was so constructed that agreement with the items leads to a high score (high dogmatism - closed mindedness), while disagreement leads to a low score (low dogmatism - open mindedness).

The selections of the most effective and least effective teachers made by the high dogmatism group of principals do not entirely substantiate Rokeach's (1960, p. 58) theory that "the more closed a person's belief system (high dogmatism), the more he tends to evaluate others according to their agreement or disagreement with his own belief system." High dogmatism principals selected many of their least effective teachers from the high dogmatism group of teachers. In the selection of the most effective teachers, however, they did show a preference for teachers with dogmatism scores similar to their own.

The open minded principals, when selecting their most effective teachers, tended to select from the low dogmatism category ('like' approving 'like') but, at the same time, covered a much wider range of the continuum than did their high dogmatism colleagues. When selecting their least effective teachers, the expected range of selection was not visible. Rokeach (1960, p. 58) said that "the more open minded person is less likely to use his own beliefs as a criterion for evaluating others." This does not hold true in the light of the selections of the

least effective teachers made by the open minded principals, for the majority were chosen either from the opposite end of the continuum or from the middle dogmatism group.

In the light of these findings a reasonable doubt is raised as to whether the Dogmatism Scale does in fact measure dogmatism at all. The tendency for the low dogmatism group of principals to select their most effective teachers from a 'like' group and their least effective teachers from an 'unlike' group suggests that they are high in dogmatism, not low. If the Dogmatism Scale does measure dogmatism, it might well be argued that the relationship between dogmatism and teacher evaluation is not as great as Rokeach (1960) intimated in his studies.

It is interesting to note that the age of a teacher became a significant factor when selections of the most effective and least effective teachers were made by the high dogmatism group of principals, but not when made by the low dogmatism group. The closed minded principals tended to select their most effective teachers from the '45 and under' group, and their least effective teachers from the '46 and over' group. The open minded principals showed little differentiation in making their selections. It would appear that the open minded principal tends to disregard the age of the teacher he is evaluating, whereas the closed minded principal does not. However, further study would be needed before one could say with any certainty that age was indeed a factor that affects the evaluation of a teacher by a principal.

Not the least interesting part of this research were the comments made on some of the questionnaires by those participating in the study, which served to confirm a theory of Rokeach (1960, p. 36) that a belief-disbelief system has several properties, one of them being the property

of isolation. According to Rokeach (1960, p. 36) the property of isolation is the reluctance of an individual to see interrelationships between two intrinsically related beliefs but, instead, considers them to be isolated from each other. Rokeach (1960, p. 36) says:

When a person says, "I do not see any connection between a and b," he is stating a relationship. The relationship is one of isolation.

Some subjects indicated on their questionnaires that they considered a few items to be contradictory statements and, as such, found them almost impossible to respond to. Rokeach (1960, p. 74) fully intended that some of the items would be contradictory², but comments such as "absurd" or "nonsense", when written by the subject alongside the particular item, are merely attempts to deny the existence of contradiction and serve as a further indication of the isolation property in the belief-disbelief system (Rokeach, 1960, p. 37).

It is further assumed by Rokeach (1960, p. 73) that closed mindedness is closely related to the property of isolation. In this study, the written comments that could be associated with the property of isolation, as defined by Rokeach (1960, p. 36), appeared mostly on the completed questionnaire form from the high dogmatism group of teachers. There were very few comments of a similar nature that appeared on the forms received from the low dogmatism group of teachers.

One of the variety of proposals that exists for the improvement of the teacher salary structure is the adoption of a merit salary policy. No system of merit for rewarding excellence in teaching can possibly approach any reasonable degree of objectivity until some common characteristics of effectiveness are defined and accepted. However, in light

2 See, for example, items 2 and 3 of the Dogmatism Scale, Form E, in Appendix D.

of earlier discussion relating to the tendency for 'like' to approve 'like' and disapprove 'unlike', it would appear unlikely that a principal would be able to give an unbiased evaluation, even if common criteria were agreed upon. This study, therefore, refutes the idea that principals should rate teachers for the purpose of determining their salaries.

A limitation of this study was the difference in staff size of the participating schools, which ranged from ten to sixty-five. No allowance was made for this discrepancy, for all principals were asked to select the same number of teachers, three most effective and three least effective. It would probably have been more logical to divide the schools into three groups--small, medium, and large according to staff size--and the number of teachers selected by the principals could have been varied accordingly. A few principals in the smaller elementary schools indicated that they experienced some difficulty in selecting three most effective and three least effective from their staffs. In some cases, the principals of the smaller schools noted that the actual difference between the most and least effective teachers was exceedingly small, whereas the principals in the larger schools seemed to experience little difficulty in making their selections, with more than one principal commenting on the tremendous gap between the most effective and least effective groups.

A further limitation to the study relates to the two questions that were raised concerning the length of the principals' appointments in Victoria and the number of years that the teachers selected by them as most and least effective have been under their supervision. Changes in administration have taken place in the Greater Victoria School District

during recent years, and some principals of long-standing appointments have found themselves in new situations with virtually 'new' staffs with which to work. Consequently, their selections of most effective and least effective teachers were somewhat limited to teachers who were fairly new to them but not necessarily to the Greater Victoria School District. In view of this fact, it might be interesting to find out how long the teachers selected as most effective and least effective have been in the teaching profession.

Of major concern, of course, is the whole question as to whether a principal can reliably or validly rate teacher performance, or effectiveness. Apparently, this is a question that has not yet been resolved. MacKay (1971, p. 18) suggests that the point has been reached in teacher evaluation that those making the evaluation should be trained in the various skills required for "systematically acquiring data for decision making," noting that the concept of evaluation has changed over the years and will probably continue to do so.

In this study, the principals were asked to select their most effective and least effective teachers without the help of a rating scale. The essential question for future research is the testing of the hypothesis that 'like' approves 'like' and disapproves 'unlike' when objective criteria are employed. If a set of objective criteria was agreed upon, it would also be interesting to find out which of the criteria would be selected as most important and which as least important by the principals making the evaluation. The question might well be asked of the teachers, too. An attempt could then be made to determine what degree of consistency exists in the selections made by those rated high in dogmatism and those rated low.

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APPENDIX A ³

The following is an attempt to determine what teachers think and feel about a number of important social and personal questions. The best answer to each statement below is your personal opinion. You may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others.

You are asked to write, in the right hand margin, your amount of agreement or disagreement with each statement.

Please mark every one.

Write +1, +2, +3, or -1, -2, -3, depending on how you feel in each case.

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

1. The United States and Russia have just about nothing in common. _____
2. The highest form of government is a democracy and the highest form of democracy is a government by those who are most intelligent. _____
3. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups. _____
4. It is only natural that a person would have a much _____

3. Copy of Milton Rokeach's Dogmatism Scale, Form E, reproduced by permission of Basic Books, Inc., New York.

better acquaintance with ideas he believes in than with ideas he opposes.

5. Man on his own is a helpless and miserable creature.

6. Fundamentally, the world we live in is a pretty lonesome place.

7. Most people just don't give a damn for others.

8. I'd like it if I could find someone who would tell me how to solve my personal problems.

9. It is only natural for a person to be rather fearful of the future.

10. There is so much to be done and so little time to do it in.

11. Once I get wound up in a heated discussion I just can't stop.

12. In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.

13. In a heated discussion I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying.

14. It is better to be a dead hero than a live coward.

15. While I don't like to admit this even to myself, my secret ambition is to become a great person, like Einstein, or Beethoven, or Shakespeare.

16. The main thing in life is for a person to want to do something important.

17. If given the chance I would do something of great benefit to the world.

18. In the history of mankind there have probably been just a handful of really great thinkers. _____

19. There are a number of people I have come to hate because of the things they stand for. _____

20. A man who does not believe in some great cause has not really lived. _____

21. It is only when a person devotes himself to an ideal or cause that life becomes meaningful. _____

22. Of all the different philosophies which exist in this world, there is probably only one which is correct. _____

23. A person who gets enthusiastic about too many causes is likely to be a pretty 'wishy-washy' sort of person. _____

24. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side. _____

25. When it comes to differences of opinion in religion we must be careful not to compromise with those who believe differently from the way we do. _____

26. In times like these, a person must be pretty selfish if he considers primarily his own happiness. _____

27. The worst crime a person could commit is to attack publicly the people who believe in the same thing he does. _____

28. In times like these it is often necessary to be more on guard against ideas put out by people or groups in one's own camp than by those in the opposing camp. _____

29. A group which tolerates too much difference of opinion among its own members cannot exist for long. _____

30. There are two kinds of people in this world--those who are for truth and those who are against the truth. _____

31. My blood boils whenever a person stubbornly refuses to admit he's wrong. _____

32. A person who thinks primarily of his own happiness is beneath contempt. _____

33. Most of the ideas which get printed nowadays aren't worth the paper they are printed on. _____

34. 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. _____

35. 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. _____

36. In the long run, the best way to live is to pick friends and associates whose tastes and beliefs are the same as one's own. _____

37. The present is all too often full of unhappiness. It is only the future that counts. _____

38. If a man is to accomplish his mission in life it is sometimes necessary to gamble "all or nothing at all." _____

39. Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what's going on. _____

40. Most people just don't know what's good for them. _____

APPENDIX B

Dear Colleague:

Within the next few days you will receive a questionnaire that will require your responses to statements dealing with attitudes and beliefs. I should be most grateful if you would complete the form, seal it in the envelope provided, and return it to your principal or someone designated by him.

By way of a brief explanation to the above request, the results of the questionnaires will form a major part of a thesis dealing with evaluation of teachers by principals.

Please do not sign your questionnaire, or indicate to me in any way whatsoever who you are. Your principal will be asked certain questions at a later date, but he will only make reference to the code numbers assigned by him to each teacher.

May I stress that he will not be asked to make a written or verbal report on any teacher.

Many thanks,

APPENDIX C

Frequency Distribution of Dogmatism Scores

N = 844

Score	Frequency	Score	Frequency	Score	Frequency
51	1	76	2	101	7
52	1	77	0	102	8
53	0	78	2	103	7
54	0	79	3	104	7
55	0	80	3	105	5
56	1	81	1	106	7
57	0	82	3	107	5
58	0	83	5	108	6
59	2	84	0	109	9
60	0	85	3	110	7
61	0	86	2	111	14
62	0	87	2	112	10
63	1	88	1	113	12
64	0	89	2	114	16
65	1	90	4	115	7
66	2	91	3	116	5
67	0	92	3	117	15
68	1	93	4	118	7
69	0	94	5	119	9
70	3	95	3	120	13
71	0	96	4	121	14
72	0	97	4	122	10
73	1	98	4	123	12
74	0	99	7	124	12
75	0	100	7	125	12

Score	Frequency	Score	Frequency	Score	Frequency
126	11	151	9	176	8
127	13	152	9	177	7
128	11	153	10	178	2
129	11	154	11	179	4
130	14	155	10	180	2
131	11	156	10	181	5
132	11	157	9	182	2
133	9	158	7	183	2
134	13	159	5	184	3
135	10	160	12	185	2
136	12	161	5	186	4
137	16	162	6	187	1
138	12	163	6	188	2
139	10	164	10	189	0
140	12	165	5	190	0
141	17	166	6	191	0
142	14	167	4	192	2
143	7	168	7	193	2
144	16	169	9	194	1
145	9	170	4	195	1
146	12	171	6	196	2
147	11	172	2	197	0
148	8	173	6	198	1
149	7	174	3	199	0
150	9	175	5	200	0

Score	Frequency
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201	0
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202	2
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203	0
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204	0
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205	0
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206	0
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207	1
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208	1
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APPENDIX D

The following tables refer to six hypotheses in which no significant relationships were found to exist.

TABLE 22 (Ho 5)

Principals' dogmatism groups and the number of years since appointment to principal

Dogmatism Group	Years			Total
	1 - 10	11 - 20	21 - 30	
High	7 (6.7)	3 (3.3)	3 (3.0)	13
Middle	6 (8.2)	6 (4.1)	4 (3.7)	16
Low	9 (7.1)	2 (3.6)	3 (3.3)	14
Total	22	11	10	43
	$\chi^2 = 2.73$		<u>df</u> = 4	

TABLE 23 (Ho 6)

Principals' dogmatism scores and ages

Age Group	Dogmatism Group			Total
	High	Middle	Low	
45 and Under	5 (5.2)	6 (6.3)	6 (5.5)	17
46 and Over	8 (7.8)	10 (9.7)	8 (8.5)	26
Total	13	16	14	43
	$\chi^2 = .79$		<u>df</u> = 2	

TABLE 24 (Ho 9)

Age groupings of high dogmatism principals
and teachers selected by them as most effective

Principals	Teachers		Total
	45 and Under	46 and Over	
45 and Under	12 (10.4)	3 (4.6)	15
46 and Over	15 (16.6)	9 (7.4)	24
Total	27	12	39
	$\chi^2 = 1.30$	<u>df</u> = 1	

TABLE 25 (Ho 10)

Age groupings of high dogmatism principals
and teachers selected by them as least effective

Principals	Teachers		Total
	45 and Under	46 and Over	
45 and Under	9 (6.9)	6 (8.1)	15
46 and Over	9 (11.1)	15 (12.9)	24
Total	18	21	39
	$\chi^2 = 1.9$	<u>df</u> = 1	

TABLE 26 (Ho 11)

Age groupings of low dogmatism principals
and teachers selected by them as most effective

Principals	Teachers		Total
	45 and Under	46 and Over	
45 and Under	11 (10.7)	7 (7.3)	18
46 and Over	14 (14.3)	10 (9.7)	24
Total	25	17	42
	$\chi^2 = .04$	<u>df</u> = 1	

TABLE 27 (Ho 12)

Age groupings of low dogmatism principals
and teachers selected by them as least effective

Principals	Teachers		Total
	45 and Under	46 and Over	
45 and Under	13 (12.4)	5 (5.6)	18
46 and Over	16 (16.6)	8 (7.4)	24
Total	29	13	42
	$\chi^2 = .16$	<u>df</u> = 1	

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(Summer and Winter Sessions) 1963 to 1971

.....

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BRITISH COLUMBIA

.....

Honors and Awards:

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Publications:

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