

A STUDY OF THE RELATIONSHIP BETWEEN SELECTED
PERSONAL AND ORGANIZATIONAL VARIABLES
AND ADOPTION OF AN INNOVATION

CENTRE FOR NEWFOUNDLAND STUDIES

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A STUDY OF THE RELATIONSHIP BETWEEN SELECTED PERSONAL
AND ORGANIZATIONAL VARIABLES AND
ADOPTION OF AN INNOVATION

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ABSTRACT

The main problem of this study was to investigate the relationship between selected personal and organizational variables and adoption of an innovation. The purpose of this study was to obtain information useful to the effort of introducing innovations in the public denominational schools of Newfoundland.

A questionnaire was devised, pre-tested, and mailed to the sample which consisted of one hundred elementary school teachers employed by the Avalon Consolidated School Board for St. John's. Forty seven per cent of the questionnaires forwarded to the subjects were returned fully completed and entirely usable for the analysis.

The relationship between personal variables and adoption of innovation was determined by testing the observed frequencies with the help of Chi-Square tests. To determine the relationship between organizational variables and adoption of innovation, scores were tested by using t tests of significance.

The findings of this study revealed that there was no significant relationship between personal variables and adoption of an innovation. This finding indicated that adoption of an innovation by a teacher was independent of

his age, sex, education, income, or teaching experience.

This study further suggested that the superintendent's support for the innovation was not necessary for a teacher to become interested in the innovation and to evaluate it for its applicability. However, teachers tended to try the innovation on a small scale to determine its usefulness, and also they tended to adopt it, when they thought that the superintendent supported the innovation.

The findings further revealed that the six organizational variables (perceived change-orientation of the principal, perceived vertical communication with the principal, perceived relationship with the principal, perceived level of participation in decision-making, perceived principal's support for the innovation, and perceived students' benefit from the innovation) were significantly related with the adoption of an innovation. These findings indicated that the teachers were more likely to take interest in the innovation, evaluate, try, and adopt it when they thought that the principal was change-oriented, that the principal talked to them about relevant subject matters, that there was a good relationship between them and the principal, that they could participate meaningfully in decision-making activities in the school, that the principal supported the innovation, and that the students benefited from the innovation used.

It was concluded that in order to promote educational change, the principal should openly demonstrate his interest in innovations, and the staff should be encouraged to participate in decision-making activities. A friendly and understanding relationship between the principal and teachers should be encouraged.

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CHAPTER I

THE PROBLEM AND THE RATIONALE FOR THE STUDY

Establishing and maintaining good quality educational programs in schools is of prime importance. Many writers in the field of educational administration have asserted that innovation and change are essential ingredients without which this quality would be nonexistent. Mismar¹ referred to world conditions: ". . . changing world conditions will require continuous evaluation and improvement of educational programs and practices." Oliver,² Chairman of the Commission on Secondary Schools of the Middle States Association, stated that, "this was an age that called for innovation and that schools should make themselves aware of these changes."

Woods³ dealt with the changing society:

Today's society is no longer stable, as it was years ago. Districts which act as if they were, are caught in the process of pressure because they must respond

¹Mismar, Paul J., Frederick W. Schneider, and Lowell G. Keith, Elementary School Administration. Columbus, Ohio: Charles E. Merrill Books, Inc., 1963, p. 3.

²Oliver, Albert I., "Challenges of Confusion," Proceedings of the 80th Annual Convention of the Middle States Association of Colleges and Secondary Schools, 1966. Middle States Association, 1967, p. 39.

³Woods, Thomas E., The Administration of Educational Innovation. Eugene: University of Oregon, 1967, p. 12.

to the demands and needs of a changing society. Schools can no longer drift along and "wait and see" but are pressured to be in the forefront of change, to make long range plans for installing new programs and "to keep ahead" of other districts.

The necessity for innovation and change in education, as well as its relation to the quality of educational programs seems undeniable. "A confirmed laggard cannot possibly provide quality programs for boys and girls who live in an ever-changing society of adults."⁴

Howard⁵ summed up well by saying:

No school administrator knocks innovation anymore: it's too dangerous. Pressure from the public, school boards, fellow educators, and especially from the U.S. Office of Education adds up to a simple message: Innovate or get left behind.

Robb⁶ warns:

We must innovate--and fast--if we are not to wake up one day soon and find ourselves talking and teaching about a world that does not even exist.

The idea of relating innovation to quality is not a new one. Mort⁷ spoke of the "capacity of an instruction to take on better practices and discard outmoded ones" as a

⁴Ibid., p. 45.

⁵Howard, Eugene R., "How to be Serious About Innovating," The Nation's Schools. April 1967, p. 90.

⁶Robb, Felix C., Innovation in Education. College of Education, University of Maryland, 1965, p. 10.

⁷Mort, Paul R. in Donald H. Ross, Administration for Adaptability. New York: Metropolitan School Study Council, Teachers College, Columbia University, 1958, p. 24.

dimension of goodness.

Mort⁸ stated:

Adaption in education is as essential a change as in any other endeavor. . . . schools that do not take advantage of the best known tools and techniques can be supposed to be as inefficient as any other purposeful enterprise that does not utilize the best knowledge it can lay its hands on. . . . This does not mean that old subject matter should be rejected simply because it is not new. . . but it cannot be too strongly emphasized that systems--schools or other kinds of systems--must adapt or perish.

Background of the Study

How can an innovation be introduced so that it will be maximally accepted by teachers in the shortest time? A review of literature on educational change indicates that evidence on this problem is inadequate. The few available studies dealt mainly with the adoption of innovations among schools. These studies of school-to-school adoption provided useful findings, but only on the nature of between-school differences related to the adoption of innovations. Given, however, that a school had adopted an innovation, the question of acceptability and effectiveness still remained. Therefore, we also need research on how innovations are adopted and used within a school. This type of study has been relatively neglected in

⁸Ibid., p. v.

education as Mann⁹ writes:

. . . relatively little empirical data exist on within-organization change which is planned and deliberate. Social scientists stress the study of the dynamics of social systems, but few have been bold enough to accept the risks involved in gaining the knowledge and skills necessary to create and measure change within a functioning organization.

By ignoring the within-school adoption process, the reality of how most innovations reach their ultimate adopters has been distorted. The study of change in a social-structural context of possibly high theoretical relevance has been ignored. How decisions to adopt or reject innovations are made by a teacher, who is at the bottom of the bureaucratic hierarchy, could provide valuable insight into the influence of authority and social structure on individual decisions. Teachers do work in organizational settings--school settings, and the organizational environment does have an important influence on teacher's innovative behavior.

Commenting on the past adoption studies Miles¹⁰ writes:

. . . a great deal of attention is paid to the individual innovator, to when he adopts the innovation, and why. But the literature remains nearly silent on the

⁹Mann, in Everett M. Rogers and F. Shoemaker, Diffusion of Innovations: A Cross Cultural and Communication Approach. New York: The Free Press of Glencoe, 1967.

¹⁰Miles, Matthew B., "Planned Change and Organizational Health: Figure and Ground," in Richard O. Carlson, Change Processes in the Public Schools. Eugene, Oregon: University of Oregon Press, 1965, p. 12.

organizational setting in which innovation takes place.

It is evident from the above discussion that the organizational variables in relation to adoption of innovation have not been studied adequately. Whether the available knowledge would apply to the Newfoundland schools, is again another question. The present study was designed to throw light on this crucial problem.

The Problem

The central problem of this study was to investigate the relationship between selected personal and organizational variables and adoption of an innovation.

Sub Problems

Personal variables of this study included age, sex, education, income, and teaching experience. The organizational variables included perceived change-orientation of the principal, perceived vertical communication with the principal, perceived relationship with the principal, perceived level of participation in decision-making, perceived superintendent's support of the innovation, perceived principal's support of the innovation, and perceived students' benefit from the innovation.

More specifically, this study was designed to answer the following questions:

1. What is the relationship between
 - a. personal variables and awareness stage of innovation-adoption process,
 - b. personal variables and interest-information stage of innovation-adoption process,
 - c. personal variables and evaluation stage of innovation-adoption process,
 - d. personal variables and trial stage of innovation-adoption process,
 - e. personal variables and adoption stage of innovation-adoption process?
2. What is the relationship between
 - a. organizational variables and awareness stage of innovation-adoption process,
 - b. organizational variables and interest-information stage of innovation-adoption process,
 - c. organizational variables and evaluation stage of innovation-adoption process,
 - d. organizational variables and trial stage of innovation-adoption process,
 - e. organizational variables and adoption stage of innovation-adoption process?

Objectives of the Study

This study was designed to achieve the following objectives:

1. To identify teacher innovators and their distinctive personal characteristics.
2. To identify specific organizational factors that facilitate or inhibit educational change.
3. To gather information useful to the effort of introducing innovations in the public denominational schools in Newfoundland.

Delimitations of the Study

This study was delimited to the following factors:

1. This study focused on full-time elementary school teachers of a selected school district--that of the Avalon Consolidated School Board for St. John's, Newfoundland.
2. Relationship of personal and organizational variables was studied with the adoption of only one innovation--ability grouping.
3. It was not the intent of this study to measure the effect of the characteristics of the selected innovation.

Significance of the Study

Main significance of the present study was felt to be the extension and development of concepts relating to the understanding of the process of innovation-adoption within the education milieu. The results of this study would be useful for the purpose of comparison with other studies of adoption in different disciplines. Moreover, it is intended that these results can also be compared with the innovation-adoption studies in education conducted outside the Province and Canada.

Theoretical implications. Two of the crucial problems in this study may be stated in their broadest implications as follows: Why are some teachers more receptive to new ideas than others? Why are some schools more receptive to new ideas than others? These queries suggest that possible explanatory

factors for the explanation of receptivity to new educational innovations may be found by studies focusing on personal and organizational factors. The development of empirically supported theories in adoption of educational innovations can make valuable contributions to the theories of educational change in general. It is intended that this study will contribute to the theoretical understanding of innovation-adoption process.

Practical implications. The results of this study will help the educational administrator to provide the best environment suitable for introduction of change. A knowledge of certain personal factors associated with adoption of innovation will help him to select those teachers who are most likely to adopt innovations in the shortest time without much resistance to change. On the basis of his analysis of an innovative and laggardly college, Davis¹¹ concluded that personnel policies offer one of the most direct means by which an organization can create a climate conducive to change.

Programs of change can be more effectively planned

¹¹Davis, Richard H., Personal and Organizational Variables Related to the Adoption of Educational Innovations in a Liberal Arts College. Ph.D. Thesis, University of Chicago, 1965.

when based on adequate understanding of organizational factors affecting the adoption of innovation. Educational organizations also need feedback so that executives may know, as accurately as possible, how effective are changes taking place at lower levels. It is hoped that this study will serve this purpose.

Finally, it is hoped that this study will provide useful information to the students of educational change, teachers, educational administrators, school board members and other change agents who are concerned with educational change.

Conceptual Framework

Following is the brief description of the theory of innovation and organizational change.

One of the significant characteristics of innovation is that the initiation may come from inside or outside the school or system. Colvard¹² noted this point and expanded upon it:

For educational innovation may be stimulated from without as well as from within. . . . It may also be resisted from without as well as from within. . . .

¹²Colvard, Richard, "The Colleges and the Arkansas Purchase Controversy," in Matthew B. Miles (ed.), Innovation in Education. New York: Columbia University, Teachers College, Bureau of Publications, 1964, p. 153.

However, "A number of observers have pointed out that impetus for change in education customarily comes from outside established educational institutions."¹³

Griffiths¹⁴ viewed organization within the frame of reference of system theory in order to establish propositions related to organization and change. He considered the organization as an "open-system, comprised of human interactions, that maintains a definite boundary."¹⁵ Administration is considered as an open sub-system and the environment as a supra-system. In his model, the administration sub-system is located at the point of tangency of the three systems.¹⁶

Though Griffiths' model led to an hypothesis that change would be relatively infrequent, he established propositions to account for the fact that it does occur at times. His first such proposition determines that the major impetus for change in organizations is from the outside, from

¹³Howsam, Robert B., "Effecting Needed Changes in Education," Designing Education for the Future. No. 3, Edgar L. Morphet and Charles O. Ryan (ed.), New York: Citation Press, 1967, p. 75.

¹⁴Griffiths, Daniel E., "Administrative Theory and Change in Organizations," in Matthew B. Miles, Innovations in Education. op. cit.,

¹⁵Ibid., p. 430.

¹⁶See Figure 1, p. 11.

the supra-system. His second, that the degree and duration of change is directly proportional to the intensity of the stimulus from the supra-system.¹⁷

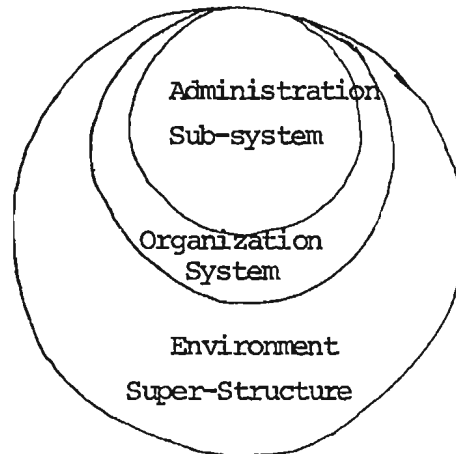


Fig. 1

Griffith's Model

Miles¹⁸ advanced a "schematic model of organization functioning and change" designed to advance the concept of "organization health" and which, he asserted, provides an alternative to existing bureaucratic models. Essentially, the Miles' model is derived from the "human relations" approach to organizations and it does not deal explicitly with the problems of social power or organizational control, authority

¹⁷Ibid., p. 435.

¹⁸Miles, Matthew B. "Education and Innovation: The Organization as Context," in Abbott, Max G. and John T. Llwel, Change Perspectives in Educational Administration. Montgomery, Alabama: Paragon Press, 1965, p. 62.

or conflict. Rather, emphasis is put on interpersonal process norms (e.g., openness, trust, inquiry, collaboration, consensus, individuality, authenticity, changefulness, and so forth). Miles very eloquently summarizes innovation in education:

In fact, most studies of innovation, in or out of educational systems, have focused on the cultural Zeitgeist, the characteristics of the innovator, the innovation itself, its diffusion across systems, or on crude demographic data on system occupants, with little attempt to analyze the structure and functioning of the innovation-receiving system as a context for innovation.¹⁹

Rogers²⁰ suggested following propositions regarding organizational change: (1) The more highly specialized the organization and the more restricted the horizontal mobility of personnel, the slower will innovations diffuse throughout that organization. (2) The relative rate of innovation adoption in an organization is negatively related to the degree of member participation in innovation decision-making. (4) An individual's attitude toward innovation in an organization is positively related to the degree of his participation in innovation decision-making.

He further suggested strategies for organizational

¹⁹Ibid., pp. 55-56.

²⁰Rogers, Everett M., Diffusion of Innovations: A Crosscultural and Communication Approach. op. cit., pp. 16-20.

change as follows: (1) utilize recruitment, selection, and training policies that encourage development of personnel oriented to innovation, (2) establish a unit within the organization to bring about change and self-renewal in the social structure, and (3) establish regular procedure within the organization to inform the top hierarchy, accurately and rapidly of the need for change at lower levels.²¹

These theories of organizational change justify the importance given in the present study to the interpersonal relationships in the innovation-adoption process.

Definition of Terms

The following is a list of definitions of terms as they were used in the thesis.

Innovation: Innovation is the "utilization of new knowledge and ideas derived from research and from the observation of practice for the purpose of enriching and improving the quality of education."²²

Adoption of Innovation: Adoption of innovation is the "mental process through which an individual passes from first hearing

²¹Ibid., pp. 25-28.

²²U.S. Department of Health, Education, and Welfare, Office of Education, Pace Projects to Advance Creativity in Education, Title III Elementary and Secondary Education Act. Washington, D.C.: Department of Health, Education, and Welfare, Office of Education, p. 3.

about an innovation to the final use of it."²³

Stages of Adoption: The adoption of an innovation has been described as five sequential stages of thinking and acting:²⁴

1. Awareness Stage: Individual learns of the existence of the innovation but lacks information about it.
2. Interest-Information Stage: Individual develops interest in the innovation and seeks additional information about it.
3. Evaluation Stage: Individual makes mental application of the innovation to his present and anticipated future situation and decides whether or not to try it.
4. Trial Stage: Individual actually applies the innovation on a small scale in order to determine its utility in his own situation.
5. Adoption Stage: Individual uses the innovation on a full scale continuously.

Organization: Organization is the "arrangement of personnel for facilitating the accomplishment of some agreed purpose through the allocation of functions and responsibilities."²⁵

Perception: Perception refers to the "process by which one attributes significances to his immediate environmental situation as influenced by factors in the perceiver and

²³Rogers, Diffusion of Innovations. New York: Free Press, 1962, p. 17.

²⁴Ibid., pp. 81-86.

²⁵Gaus, John M., The Functions of Public Administration. Chicago: University of Chicago Press, 1936, p. 66.

factors in the environment."²⁶

Ability Grouping: Ability grouping is "the classifications of pupils for the purpose of forming instructional groups having a relatively high degree of similarity in regard to certain factors that affect learning."²⁷

Perceived Change-Orientation of the Principal: the extent to which the teacher perceived his principal to be aware of and interested in innovations. Change-orientation refers to the degree of general predisposition toward change.

Perceived Vertical Communication with the Principal: the teacher's perception of how often his principal talked to him about relevant subject matters.

Perceived Relationship with the Principal: teacher's perception of the relationship between himself and the principal, whether the principal is friendly, understanding, easy to approach, consults in the matters, easy to get along with, etc.

Perceived Participation in Decision-Making: the extent to which the teacher perceived himself taking part in relevant

²⁶Ittelson, William H. and Hadley Cantril, Perception: A Transactional Approach. New York: Doubleday and Company Inc., 1954, p. 26.

²⁷Passow, Harry A., "The Maze of the Research on Ability Grouping," in Maurie Hillson, Change and Innovation in Elementary School Organization. New York: Holt, Rinehart and Winston, Inc., 1965, p. 37.

decision-making activities in the school.

Perceived Superintendent's Support: the extent to which the teacher thought the superintendent supported the innovation.

Perceived Principal's Support: the extent to which the teacher thought his principal supported the innovation.

Perceived Students' Benefit: the teacher's perception of student benefits from the innovation.

Elementary School: refers to a school other than secondary or post secondary in which we find grades K-6 or any combination thereof.

Summary

The central problem of this study was to investigate the relationship between selected personal and organizational variables and adoption of an innovation. The purpose of this study was to identify some personal and organizational factors that facilitate or inhibit educational change.

This chapter discussed rationale for change, background of the study, the problem and sub-problems, objectives, delimitations, significance of the study, conceptual framework to the problem, and explained the terms used in the study.

CHAPTER II

REVIEW OF RESEARCH LITERATURE

The "information explosion" of recent years has included a vast and rapidly increasing quantity of literature concerned with educational change. Since the literature is extensive, the review is delimited to include examination of findings regarding (1) the process of innovation; (2) personal and social characteristics of the innovators; and (3) individual roles in educational change.

Studies Related to the Process of Innovation

Much of the research in the area of innovation has been in terms of the kinds of innovations, how innovation is brought about, barriers to innovation, and the time necessary for innovations to spread from their source of initiation.

In a study of innovation in small schools in North Dakota, Hanson²⁸ indicated that innovation areas with the widest participation were technological developments and

²⁸Hanson, John O., A Descriptive Study of Basic Data and the Educational Innovations Found in Twenty-Two Selected North Dakota Small Schools. The University of North Dakota, Dissertation Abstract, 27, 6A, 1966.

correspondence courses; those areas of least participation in innovation were team teaching, school aides, shared services, multiple classes, and non-graded procedures.

A National Survey of 7,237 accredited high schools, as reported by Cawelti,²⁹ analyzed, state by state, how many schools have accepted or rejected 27 important innovations. The most commonly adopted innovations were those associated with language laboratories, work-study programs, physics, team teaching, and chemistry. Innovations most often abandoned were associated with mathematics, honor study halls, programmed instruction, team teaching, and television instruction. The highest abandonment rate is associated with honor study halls; six per cent of the schools adopting them later abandoned them.

A recent 48-State, Gallup Poll³⁰ revealed that school board members favor educational change. Thirteen innovations were used to sample the opinions of board members and parents. The results indicated that college admission requirements and regulations, followed by state boards of education, impeded curriculum change and that more flexible college entrance

²⁹Cawelti, Gordon, "Innovative Practices in High Schools: Who Does What - and Why - and How," The Nation's Schools, April 1967.

³⁰"School Boards Tell Gallup Poll: We Want To Innovate," The Nation's Schools, February 1967, pp. 58-59, 110.

requirements would encourage high schools to develop new programs.

Mort³¹ suggested that one of the basic underlying factors in adaptability (by adaptability he referred to the "capacity of an institution to respond to its role in society and to new insights concerning its techniques of operation") was wealth. He concluded: "If but one question can be asked, on the basis of the response to which a prediction of adaptability is to be made, the question is: 'How much is spent per pupil?'"³²

Jacobs' findings³³ are among those recent ones challenging the relationship between expenditure and innovation. He concluded that there was not a significant relationship between curricular innovations in the junior high school and wealth factors.

Carlson's research³⁴ in Pennsylvania in West Virginia

³¹Mort, Paul R., "Studies in Educational Innovation from the Institute of Administrative Research: An Overview," in Mathew B. Miles, (ed.). Innovation in Education. op. cit., p. 318.

³²Mort, Paul R., Reported in Donald H. Ross, Administration for Adaptability. op. cit., p. 15.

³³Jacobs, Jan Wayne, "Leadership, Size, and Wealth as Related to Curricular Innovations in the Junior High School." Unpublished Ph.D. Dissertation, University of Michigan.

³⁴Carlson, Richard O., Change Processes in the Public Schools. op. cit., p. 9.

also challenged the previous findings of a relationship between money spent per child and the rate of adoption of educational innovations. He reports that "amount of the money spent per child had a negative insignificant correlation. That is, amount of money spent per child had no predictive powers in relation to the rate of adoption of these innovations."

Rogers³⁵ suggests that "a high relationship has been found between the financial resources of a school system and its innovativeness. In fact, outstandingly innovative school systems are usually located in particularly wealthy communities. At the same time, however, it is important to remember that not all rich schools are innovators and that not all schools that innovate are rich."

Cawelti's study³⁶ revealed that schools with larger enrollments tended to have more innovations; that innovation averages were about the same for schools enrolling fewer than 200 students and those in the 200 to 499 categories but thereafter increased from 5.5 to 7.6 innovations in schools enrolling more than 2,500 students. He also concluded that little

³⁵Rogers, Everett M., "What Are Innovators Like?" in Richard O. Carlson, Change Processes in the Public Schools. op. cit., p. 60.

³⁶Cawelti, op. cit., p. 24.

difference was found between urban and suburban high schools and that the larger the area the more innovative the schools. Small towns and rural schools were the least innovative.

Jacobs³⁷ reported that in the findings of his study the correlation coefficients did not reveal a significant relationship between the number of curricular innovations and the enrollment of the junior high school.

In his study of three Michigan high schools, Lin³⁸ measured four dependent variables which he considered important in studying adoption of innovation in an organizational context: (1) innovation awareness, (2) innovation adoption, (3) innovation internalization, and (3) general change orientation. Innovation internalization was defined as "the extent to which a teacher perceived the innovation relevant and valuable to his role performance in the school" and by change orientation he meant "individual's degree of general predisposition toward change." He found that innovation internalization was significantly related with 22 organizational variables, and change orientation was significantly related with 18 variables.

³⁷Jacobs, op. cit.

³⁸Lin, Nan, Innovation Internalization in Formal Organization. Ph.D. Thesis, East Lansing, Michigan State University, 1966.

In a study of 600 villagers in 26 Philippine neighbourhoods, Qadir³⁹ found that the structural effects (of neighbourhood mean education, mass media exposure, etc.) were about as effective as predictors of individual innovativeness, as were individual variables like education, mass media exposure, etc. He suggested that in modern systems with a social climate favorable to the adoption of innovations, even individuals lacking much education, mass media exposure, or a modern orientation, acted in an innovative manner.

Paskal⁴⁰ examined interrelationships of (1) Organizational complexity, (2) perceptions of groups of staff members of their organizational and professional settings, and (3) faculty orientations toward innovative educational practices. He found that increasing organizational complexity was directly and positively associated with increasing innovative orientations of faculty.

³⁹Qadir, Syed Abdul, Adoption of Technological Change in the Rural Philippines - An Analysis of Compositional Effects. Ph.D. Thesis, Ithaca, New York, Cornell University, 1966.

⁴⁰Paskal, Dolores, Innovative Orientations in Educational Organizations: A Descriptive Study of Three Secondary Schools. Ph.D. Dissertation, Wayne State University, Detroit, Michigan, 1969.

Studies Related to the Personal and Social
Characteristics of the Innovators

Willower and Jones⁴¹ found that more experienced teachers generally held conservative views while less experienced teachers were more liberal and permissive. The more experienced teachers dominated the informal structure of the school and did not hesitate to communicate their point of view to less experienced teachers. They favored the status-quo and opposed changes that were likely to result in a more permissive procedure.

Lin⁴² reports that younger teachers are more innovative than older teachers but awareness of innovation is greater in older teachers than younger teachers. Innovative teachers have higher salary and more years of education.

In their content analysis of 2,486 research findings relating other variables to innovativeness (innovativeness is defined as "the degree to which the unit of adoption is relatively earlier in adopting new ideas than other members

⁴¹Willower, D. G. and Donald G. Jones, "When Pupil Control Becomes an Institutional Theme," Phi Delta Kappan, 1963, 45, pp. 107-109.

⁴²Lin, Nan, et al., The Diffusion of an Innovation in Three Michigan High Schools: Institution Building Through Change. Research Report No. 1 prepared by the Project on the Diffusion of Education Practices in Thailand. East Lansing: Institute for International Studies in Education and Department of Communication, Michigan State University, 1967, pp. 42-43.

of his social system"), Rogers and Stanfield⁴³ concluded that education, literacy, income and level of living are the general non-attitudinal correlates of innovativeness. If a person is innovative, he is also likely to have more education than others in his social system, he is literate, he has a higher income and enjoys a higher level of living. No generalization could be made regarding the relationship between age and innovativeness. Knowledgeability and attitude toward change are among the attitudinal variables which seem consistently correlated with innovativeness. They report that variables which have to do with the individual's relation with the social world outside himself are also related to innovativeness. The more he participates in group activities, the more cosmopolite he is, the more he is exposed to mass media and the more contact he has with agencies of change, the more likely he is to adopt new ideas.

Jamias and Troidahl⁴⁴ verified two hypotheses on innovativeness and dogmatism. They concluded that highly

⁴³Rogers, Everett M. and David J. Stanfield, "Adoption and Diffusion of New Products: Emerging Generalizations and Hypotheses," Paper presented at the Conference on the Application of Sciences to Marketing Management, Purdue University, July 12-15, 1966, pp. 20-25.

⁴⁴Jamias, J. F. and V. C. Troidahl, Dogmatism, Tradition, and General Innovativeness. Unpublished Manuscript, Department of Communication, Michigan State University, 1965.

dogmatic individuals have a lower rate of adoption of innovations than less dogmatic individuals, and that the adoption rate of highly dogmatic individuals is greatly influenced by the strength of the "value for innovativeness" in a social system, but it has relatively less influence on low dogmatic individuals.

Studies Related to the Individual Roles in Educational Change

A substantial number of studies were concerned with the roles and behaviors of individuals involved in the change process.

The superintendents. Klingenberg⁴⁵ found significant differences in the characteristics of superintendents in innovative and non-innovative districts: (1) administrators in innovative districts use more sources of information for new curriculum practices than those in non-innovative districts; (2) innovative district heads have more years of experience as educators than do heads of non-innovative districts; (3) superintendents in innovative systems use the teaching staff more widely in curriculum change than do those in non-innovative systems; (4) superintendents of innovative districts recognize

⁴⁵Klingenberg, Allen J., A Study of Selected Administrative Behaviors Among Administrators from Innovative and Non-Innovative Public School Districts. Michigan State University, Dissertation Abstract 27, 9A, 1966, p. 2788-A.

the worth and dignity of their staff more than do those heading non-innovative districts; (5) superintendents in innovative districts earn a greater number of semester hours past the bachelor's degree; and (6) read more professional journals.

Carlson's study⁴⁶ of the adoption of educational innovations by school superintendents focused on how the social structure and the communication network among school superintendents influenced the diffusion pattern. In the part of the study conducted in Alleghany County, Pennsylvania, Carlson found that the superintendents who were integrated with their peers tended to adopt innovations more readily than superintendents who were more isolated. He also found that the opinion leaders were clustered in the high status levels and drew their advisees from the upper and middle status levels. The advice-seeking contacts by lower status superintendents were generally made with non-opinion-leaders. When Carlson conducted his study for the superintendents in the whole state of West Virginia, he found that advice was sought from employees in the State Department of Education, from other superintendents higher in status than the advisees

⁴⁶Carlson, Richard O., Adoption of Educational Innovations. Center for Advanced Study of Educational Administration, University of Oregon, Eugene, Oregon, 1965.

and in general from superintendents in neighboring counties. Carlson reports that using rate of adoption as the dependent variable, several predictors were found statistically significant. Significant predictors included superintendent characteristics of professionalism, opinion leadership, recency of education, attendance at meetings, realistic awareness of innovative environment, and origin.

The principals. Principals are key figures in promoting and influencing innovation. Chesler and others⁴⁷ report that the amount of staff innovativeness depends heavily on the staff's perception of the principal's support of innovative teaching. In addition, the principal must have an accurate perception of the skills of his staff and of their feelings and values about education. The principal who publicly supports new classroom practices is more likely to have innovative teachers.

Currie⁴⁸ reports that immediate availability of funds was a primary factor influencing principal's decisions to innovate when change seemed to require some immediate

⁴⁷Chesler, Mark, Richard Schmuck, and Ronald Lippitt, "The Principal's Role in Facilitating Innovation," Theory Into Practice, Vol. 2, December 1963, pp. 269-277.

⁴⁸Currie, Craig H., Secondary School Principals' Assessment of the Importance of Personal and Situational Factors in the Adoption of Innovations. University of Oregon, Dissertation Abstract 27, 3A, 1966.

expenditure. Principals saw situational factors such as staff and school board support as being of primary importance in deciding whether to adopt innovations. They relied heavily on administrative authority in making decisions. Team teaching, variations in class size, and the use of teacher aides were innovations being favorably considered, while educational television and flexible scheduling were least likely to be adopted.

Innovativeness of principals, according to Goetz's study,⁴⁹ was positively related to their attitudes toward research and innovation, the extent of dissemination practices in the district, and whether his superiors' mode of operation was democratic or less democratic. Innovativeness was negatively related to years as a principal in the present building and total years of administrative experience. These principals tended to implement innovations that did not require additional funds or system-wide cooperation. They had a favorable but realistic attitude toward professional literature. They believed that their superiors were favorably disposed toward research and innovation and that their teachers were very competent to participate in research and development activities. They felt they did have authority

⁴⁹Goetz, Francis, R., Innovation and the Public Elementary School Principal. Wayne State University, Dissertation Abstract, 26, 1965.

to implement change and that they should be leaders in the process.

Greer⁵⁰ found that both personal and organizational factors are important in principals' actions regarding innovation. Principals tended to make decisions which they felt would meet with the approval of their superiors; but, as a result of communication failures they often failed to perceive accurately what superior expectations might be.

Lippitt's findings⁵¹ also support the importance of principal's influence on adoption of innovation. He reports that "the greater the frequency with which the principal was seen engaged in such activities as offering constructive suggestions to teachers, bringing educational literature to their attention, talking to them about their personal and professional activities and growth, or showing that he knew what was going on in classrooms, the greater appears to be his influence on the degree of adoption."

Demeter⁵² concluded that "building principals are key

⁵⁰Greer, John T., A Study of the Decisions of Four Selected High Schools Principals. Northwestern University, Dissertation Abstract 22, 1961.

⁵¹Lippitt, Ronald and Colleagues, "The Teacher As Innovator, Seeker, and Sharer of New Practices," in Richard I. Miller, (ed.) Perspectives on Educational Change. New York: Appleton-Century-Crofts, 1967, p. 321.

⁵²Demeter, Lee H., Accelerating the Local Use of Improved Educational Practices in School Systems. Ed.D. Thesis, Teachers College, Columbia University, 1951, p. 23.

figures in the process. Where they are both aware of and sympathetic to an innovation, it tends to prosper. Where they are ignorant of its existence, or apathetic if not hostile, it tends to remain outside the bloodstream of the school."

The teachers. In a study of teachers' perceptions of conditions influencing change and their roles in innovation, Doughty⁵³ concluded that teachers felt that successful implementation of change required adequate teacher training, guidance, time and resources. Satisfactory interpersonal relations and the development of security feelings were also regarded as important. However, in-service education, supervisory help, and administrative guidance were not thought to be of much value in implementation. Teachers felt their principal role was in the implementation phase, with little involvement in planning or instigation. Although they saw themselves as autonomous independent individuals who favored innovation, they seldom instigated change processes.

Smittle⁵⁴ reports that certain areas of innovation

⁵³Doughty, Billie M., Some Factors Affecting Innovation as Identified in Educational Literature and as Perceived by Selected Teachers. University of Alabama, Dissertation Abstract 27, 9A, 1966.

⁵⁴Smittle, George B., A Study of the Perceptions of Teacher Involvement in Critical and Routine Decisions in Selected Schools of Ohio. The Ohio State University, Dissertation Abstract 26, 1962.

appeared to elicit more teacher involvement than others. These included instructional materials, pupil conduct, setting goals, grouping, promotion, and grading practices. Teachers were not, in general, interested in the planning of buildings, class scheduling, financing, and the evaluation of certificated or non-certificated personnel.

Chesler and Fox⁵⁵ found that "when teachers as a group feel powerless, isolated, uninvolved, and dissatisfied with their roles, they are not likely to instigate change. Teachers who feel that their colleagues have little influence on school policy are themselves unlikely to begin or support activities leading to classroom change.

Lippitt's study⁵⁶ also suggests that "teachers who feel that they have power which they can use to direct their own classroom life, that they can manage their classrooms effectively, and who are confident about themselves appear to be more involved in the innovation-diffusion process than other teachers."

⁵⁵Chesler, Mark and Robert Fox, "Teacher Peer Relations and Educational Change," NEA Journal, May 1967, p. 26.

⁵⁶Lippitt, Ronald and Colleagues, "The Teacher as Innovator, Seeker, and Sharer of New Practices," in Richard I. Miller, op. cit., p. 322.

Eibler⁵⁷ compared high-innovating and low-innovating schools in Detroit and found that faculty members in the low-innovating schools: (1) felt that there was not enough contact with other faculty and professional personnel; (2) tended to conform closely with the rules, procedures and policies of the school; and (3) saw a greater need for curriculum revision by the faculty. This study also showed that faculties in high-innovating schools, when compared to low-innovating schools, felt: (1) that they participated more in making school policies, rules and procedures; (2) that more curriculum changes had been made in recent years; (3) that the quality of educational leadership was higher; and (4) that they had developed a greater need for independent and "sticking together" against outside criticism. Finally, this study concludes that the faculties in high-innovating schools were better prepared academically, were older, and had more teaching experience.

Summary

This chapter presented a summary of the related research

⁵⁷Eibler, Herbert J., A Comparison of the Relationships Between Certain Aspects of Characteristics of the Structure of the High School Faculty and the Amount of Curriculum Innovation. The University of Michigan, Dissertation Abstract 26, 1965.

literature. It examined the findings of research related to 1. the process of innovation, 2. personal and social characteristics of the innovators, and 3. individual roles in educational change.

Much of the research in the area of innovation has been in terms of the kinds of innovation, how the innovation is brought about, barriers to innovation, and the time necessary for innovations to spread from their source of initiation.

A number of researchers have focused on the personal attributes of the innovators and variables such as age, education, teaching experience, economic status, and many other personality traits have been studied in relation to the adoption of innovations.

A substantial number of studies were concerned with the roles and behaviors of individuals involved in the change process.

CHAPTER III

METHODOLOGY AND RESEARCH DESIGN

The methodology consisted of the solicitation of data from the sample by means of a questionnaire, and the statistical analysis of the data thus obtained. This chapter contains a detailed statistical description of the sample, based on data reported on the returned questionnaires, and a description of the methodology and research procedure.

Selection of the Area

St. John's, the largest city in the province, provided several advantages and was suitable for the purpose due to economic considerations. The school board was willing to co-operate in the project.

The Population of the Study

Population of this study consisted of all the full-time teaching personnel (exclusive of formally designed supervisory and administrative staff) at the elementary level in the schools in St. John's under the jurisdiction of Avalon Consolidated School Board.

There were 335 such teachers. This population was obtained from the Department of Education records for the

school year 1972-73.

The Sample

A random sample of 100 teachers or approximately 30 per cent of the total population was selected by using a table of random numbers.⁵⁸ Out of 100 teachers, 47 (or 47 per cent) returned the completed questionnaires.

Table 1 shows the number of respondents according to age. The data reported in this table suggests that elementary school teaching force in Avalon Consolidated School Board for St. John's is relatively young. Approximately 57 per cent or more than one-half of the total respondents were in their early or late 20's. Approximately 32 per cent of the respondents were in between 30 and 50 years and only approximately 11 per cent were over 50 years of age.

⁵⁸Glass, Gene V. and Julian C. Stanley. Statistical Methods in Education and Psychology. New Jersey: Prentice-Hall, Inc., Englewood Cliffs, 1970, pp. 510-12.

Table 1
Distribution of Sample by Age in
Frequency and Percentage

Age	Respondents	
	Frequency	Per Cent
20 - 24 years	12	25.53
25 - 29 years	15	31.92
30 - 34 years	3	6.38
35 - 39 years	5	10.64
40 - 44 years	6	12.76
45 - 49 years	1	2.13
50 - 54 years	1	2.13
55 - 59 years	3	6.38
60 years or over	1	2.13
Total	47	100.00

Table 2 shows the number of respondents according to sex. It is evident that females predominate teaching profession. 85 per cent of the respondents were females and only 15 per cent were males.

Table 2
Distribution of Sample by Sex in
Frequency and Percentage

Sex	Respondents	
	Frequency	Per Cent
Male	7	14.89
Female	40	85.11
Total	47	100.00

Education of respondents is given in Table 3. Approximately 87 per cent of the respondents have either 1 to 3 years of college education or the Bachelor's degree. About 8 per cent of the respondents have 5 years con-joint degrees. Only one respondent has 4 years of college-education but no degree, and only one respondent has two Bachelors degrees. None of the respondents have education beyond the Bachelors degree.

Table 3
Distribution of Sample by Education in
Frequency and Percentage

Education	Respondents	
	Frequency	Per Cent
1 - 3 years of College	15	31.92
Bachelors Degree	26	55.31
5 years Joint Degree	4	8.52
Graduate Diploma	0	0.00
Masters Degree	0	0.00
Other	2	4.25
Total	47	100.00

Table 4 shows that 74 per cent or three-quarters of the total respondents have income in between \$6,000 and \$9,000. None of the respondents have income less than \$5,000. Only 13 per cent have income in between \$5,000 and \$6,000 and approximately the same number have income in between \$10,000 and \$12,000.

Table 4
Distribution of Sample by Income in
Frequency and Percentage

Income (yearly)	Respondents	
	Frequency	Per Cent
\$ 5,000 or less	0	0.00
\$ 5,001 - \$ 6,000	6	12.76
\$ 6,001 - \$ 7,000	11	23.40
\$ 7,001 - \$ 8,000	12	25.53
\$ 8,001 - \$ 9,000	12	25.53
\$ 9,001 - \$10,000	2	4.26
\$10,001 - \$11,000	2	4.26
\$11,001 - \$12,000	2	4.26
\$12,001 and above	0	0.00
Total	47	100.00

Table 5 shows the number of respondents according to teaching experience. About 8 per cent of the respondents have less than 1 year of teaching experience, 47 per cent have 1 to 8 years, 26 per cent have 9 to 16 years, and 19 per cent have more than 16 years of teaching experience.

Table 5
Distribution of Sample by Teaching Experience
in Frequency and Percentage

Teaching Experience	Respondents	
	Frequency	Per Cent
Less than 1 year	4	8.52
1 - 4 years	13	27.66
5 - 8 years	9	19.14
9 - 12 years	10	21.27
13 - 16 years	2	4.26
17 - 20 years	4	8.52
More than 20 years	5	10.63
Total	47	100.00

The Questionnaire

After reviewing relevant literature, several questionnaire items were constructed. Two Graduate Students at Memorial University of Newfoundland, who had previous teaching experience, critically examined these items. This step was primarily intended to adjust the clarity of the items. After modification and reorganization, the screened items were assembled as a form of questionnaire for pre-test.

In the pre-test subjects were asked to: (1) scrutinize the items according to readability, semantic ambiguities and possible confusion; (2) respond to each item according to the instructions given in the questionnaire; and (3) classify each item according to the variables identified for the study. An explanation of the variables was provided to serve as a guide in classifying the items.

Data from the pre-test was used for ascertaining the internal consistency and validity of the questionnaire.

In the introduction to the final questionnaire, the general purpose of the study was described and the confidential nature of the individual's response was emphasized. The respondents were asked not to place their names and were assured that the data would be used only by the researcher.

Operational Procedure

This study was conducted in a number of stages over a period of several months during 1972-73. The complete project entailed a variety of separate activities which are referred to here as the operational procedure. These activities in order of occurrence were as follows:

1. The names and addresses of all teachers in the population were compiled from the 1972-73 attendance reports from the schools concerned to the Department of Education.
2. The entire list of names in the population were

assigned numbers, and one hundred teachers were randomly selected to form the sample for the study.

3. A preliminary draft of the questionnaire was designed and administered to twenty teachers (who were not included in the sample). In this administration of the questionnaire, comments were solicited from the subjects for possible improvements to the instrument.

4. The final questionnaire for the main study was prepared incorporating some minor changes as suggested by the respondents in the pilot study.

5. The questionnaire was administered and collected by mail. For these purposes, the following correspondence was employed:

- a. A letter was sent to the superintendent of the Avalon Consolidated School Board for St. John's explaining the nature and purpose of the study and requesting permission to conduct the study in schools. Permission was given the researcher.
- b. A letter was sent to the principals of all schools represented in the sample notifying them that the research would be carried out.
- c. A letter was sent to all the teachers in the sample notifying them that they had been selected as subjects for the study. This letter also explained the nature of the research and requested

their co-operation and assistance.

d. Questionnaires were mailed to the subjects on November 3, 1972. A self-addressed pre-stamped envelope was enclosed to facilitate the returning of questionnaires. Three weeks later, on November 29th, a follow-up letter was mailed to each subject in an effort to obtain some questionnaires that had not been received by that date.

6. Individual data on the questionnaires were collated in a preliminary form to facilitate the data-analysis, and statistical tests were performed on the data.

7. Following the completion of the study and the writing of the report in March 1973, an abstract of the findings and recommendations was prepared and mailed to the Central Office of the Avalon Consolidated School Board for St. John's, and to the principals of schools from which subjects for the study had been selected.

Treatment of the Data

The data treatment was conducted in three stages. Stage one consisted of tabular presentation and discussion of the frequency distributions of the scores for the entire sample.

In stage two, the sample was divided into two groups for each of the stage of innovation-adoption process, and the

observed frequencies of the two groups on personal variables were tested by using chi-square tests.

In stage three, the sample was divided into two groups for each of the stage of innovation-adoption process, and the mean scores of the two groups on organizational variables were tested by using t tests of significance.

Summary

This chapter described the instrument used in the research and the methodology to conduct the study.

The questionnaire used for the study was devised by the researcher and refined in a pilot study. Forty seven per cent of the subjects in the sample returned the questionnaire.

A statistical breakdown of the data revealed that elementary school teaching force in the Avalon Consolidated school board for St. John's is predominately female and relatively young. A majority of the teachers had 1 to 4 years of university education, and income between \$6,000 to \$9,000. Also, they had few years of teaching experience.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF THE DATA

This chapter presents the analysis and interpretation of the data, and findings of the study. The analysis and findings are presented in three sections. Section I contains the analysis and findings regarding the relationship of personal variables with the adoption of innovation. Section II contains the analysis and findings regarding the relationship of organizational variables with the adoption of innovation. The final section of the chapter presents a summary of the complete findings of the study.

I. Personal Characteristics and Adoption of Innovation

As discussed in Chapter I, adoption process consists of five stages: awareness stage, interest-information stage, evaluation stage, trial stage, and adoption stage. In the present study, relationship of independent variables was tested with all the five stages of innovation-adoption process.

a. Awareness Stage

Since all the respondents in the sample reported that they were aware of the innovation at the time they filled the

questionnaire, the relationship between personal characteristics and the awareness stage of innovation-adoption process could not be found.

b. Interest-Information Stage

Interest-information stage is the stage of innovation-adoption process in which an individual develops interest in the innovation and seeks more information about it. One question was used to measure this stage of innovation-adoption process. This question had two response categories eliciting 'yes' or 'no' answer. On the basis of the responses, the total sample was divided into two groups. One group consisted of those respondents who checked 'yes' answer, and was referred to as the "Interested" group. The other group consisted of those respondents who checked 'no' answer, and was referred to as the "Not Interested" group. Observed frequencies with regard to the personal characteristics were obtained for these two groups. Chi square values of the observed frequencies are given in Table 6.

Table 6
Relationship between Personal Characteristics
and the Interest-Information Stage of
Innovation-Adoption Process

Personal Characteristics	X^2
Age	6.89 N.S.*
Sex	2.05 N.S.*
Education	1.09 N.S.*
Income	3.69 N.S.*
Teaching Experience	7.21 N.S.*

* X^2 is not significant at .05 level of confidence

Table 6 shows that the X^2 value is not significant for any of the personal characteristics of the teacher. These insignificant X^2 values suggest that whether or not a teacher will take interest in the innovation does not depend on his age, sex, education, income, or teaching experience.

c. Evaluation Stage

Evaluation stage is the stage of innovation-adoption process in which an individual makes mental application of the innovation to his present and anticipated future situation and decides whether or not to try it. One question was used to measure this stage of innovation-adoption process. This

question had two response categories eliciting 'yes' or 'no' answer. On the basis of the responses, the total sample was divided into two groups. One group consisted of those respondents who did evaluate the innovation, and the other group consisted of those respondents who did not evaluate the innovation. Observed frequencies with regard to the personal characteristics of the teachers were obtained for these two groups. Chi-square values of the observed frequencies are given in Table 7.

Table 7
Relationship between Personal Characteristics and
the Evaluation Stage of Innovation-
Adoption Process

Personal Characteristics	χ^2
Age	9.91 N.S.*
Sex	.27 N.S.*
Education	2.01 N.S.*
Income	4.71 N.S.*
Teaching Experience	6.35 N.S.*

* χ^2 is not significant at .05 level of confidence

Table 7 shows that the X^2 value is not significant for any of the personal characteristics of the teacher. These results suggest that whether or not a teacher will evaluate the innovation and will decide one way or the other about its adoption does not depend on his age, sex, education, income, or teaching experience.

d. Trial Stage

This is the stage of innovation-adoption process in which an individual actually applies the innovation on a small scale in order to determine its utility in his own situation. One question was used to measure this stage of innovation-adoption process. This question had two response categories eliciting a 'yes' or 'no' answer. On the basis of the responses, the total sample was divided into two groups. One group consisted of those respondents who did try the innovation, and the other group consisted of those respondents who did not try the innovation. Observed frequencies with regard to the personal characteristics were obtained for these two groups. Chi-square values of the observed frequencies are given in Table 8.

Table 8
Relationship between Personal Characteristics and
the Trial Stage of Innovation-Adoption
Process

Personal Characteristics	X^2
Age	7.85 N.S.*
Sex	.16 N.S.*
Education	2.91 N.S.*
Income	6.0 N.S.*
Teaching Experience	6.78 N.S.*

* X^2 is not significant at .05 level of confidence

As shown in Table 8, X^2 value is not significant for any of the personal characteristics. It suggests that whether or not a teacher will try the innovation on a small scale to determine its usefulness does not depend on his age, sex, education, income, or teaching experience.

e. Adoption Stage

Adoption stage is the final stage of the innovation-adoption process. This is the stage in which an individual uses the innovation on a full scale continuously. One question was used to measure this stage of the innovation-adoption process. This question had two response categories

eliciting a 'yes' or 'no' answer. On the basis of the responses, the total sample was divided into two groups. One group consisted of those respondents who did adopt the innovation, and was referred to as the "Adoption" group. The other group consisted of those respondents who did not adopt the innovation, and was referred to as the "Non Adoption" group. Observed frequencies with regard to the personal characteristics were obtained for the "Adoption" and "Non Adoption" group. Chi-square values of the observed frequencies are given in Table 9.

Table 9
Relationship between Personal Characteristics and
the Adoption Stage of Innovation-Adoption
Process

Personal Characteristics	χ^2
Age	6.13 N.S.*
Sex	.31 N.S.*
Education	.37 N.S.*
Income	2.79 N.S.*
Teaching Experience	10.63 N.S.*

* χ^2 is not significant at .05 level of confidence

Table 9 shows that the X^2 value is not significant for any of the personal characteristics. These results indicate that whether or not a teacher will adopt the innovation does not depend on his age, sex, education, income, or teaching experience.

II. Organizational Variables and Adoption of Innovation

Since the innovation-adoption process was measured in five stages, the relationship of organizational variables was tested with all the five stages.

Perceived change-orientation of the principal was defined as the extent to which the teacher perceived his principal to be aware of and interested in innovations. A four item scale was used to measure this variable. Each of the four items had 5 response categories permitting the highest possible score to be 20. The higher the score, the greater was the degree of perceived change-orientation of the principal.

Perceived vertical communication with the principal was defined as the teacher's perception of how often his principal talked to him about relevant matters. A four item scale was used to measure this variable. Each of the four items had 5 response categories permitting the highest possible score to be 20. The higher the score, the greater was the degree of perceived vertical communication with the principal.

Perceived relationship with the principal was defined as the teacher's perception of the relationship between him and the principal. A six item scale was used to measure this variable. Each of the six items had 5 response categories permitting the highest possible score to be 30. The higher the score, the greater was the degree of perceived good relationship with the principal.

Perceived level of participation in decision-making was defined as the extent to which the teacher perceived himself taking part in the relevant decision-making activities in the school. A four item scale was used to measure this variable. Each of the four items had 5 response categories permitting the highest possible score to be 20. The higher the score, the greater was the degree of perceived level of participation in decision-making.

Perceived superintendent's support of the innovation was defined as the extent to which the teacher thought the superintendent supported the innovation. A two item scale was used to measure this variable. Each of the two items had 5 response categories permitting the highest possible score to be 10. The higher the score, the greater was the degree of perceived superintendent's support of the innovation.

Perceived principal's support of the innovation was defined as the extent to which the teacher thought his principal supported the innovation. A two item scale was

used to measure this variable. Each of the two items had 5 response categories permitting the highest possible score to be 10. The higher the score, the greater was the degree of perceived principal's support of the innovation.

Perceived students' benefit from the innovation was defined as the teacher's perception of the extent to which his students benefit from the innovation used. A one item scale was used to measure this variable. This item had 5 response categories permitting the highest possible score to be 5. The higher the score, the greater was the degree of perceived students' benefit from the innovation.

Innovation-adoption process was measured in five stages by using a 5 question scale. Each of the five questions had two response categories eliciting a 'yes' or 'no' answer. On the basis of the responses, the total sample was divided into two groups for each stage of the innovation-adoption process. Scores on organizational variables were obtained for these two groups. Mean scores were tested by using t tests of significance.

a. Awareness Stage

Since all the respondents in the sample reported that they were aware of the innovation at the time they filled the questionnaire, the relationship between organizational variables and the awareness stage of the innovation-adoption process could not be found.

b. Interest-Information Stage

On the basis of the responses, the total sample was divided into two groups. One group consisted of those respondents who checked the 'yes' answer and was referred to as the "Interested" group. The other group was referred to as the "Not Interested" group which consisted of those respondents who checked the 'no' answer. Scores on each of the organizational variables were obtained for the Interested and Not Interested group. Mean scores were tested by using t test of significance. Statistics for the scores of the two groups on each variable are summarized in Table 10.

Table 10
Relationship between Organizational Variables
and the Interest-Information Stage of
Innovation-Adoption Process

Organizational Variables	Mean		S^2	$S_{\bar{x}_1} - \bar{x}_2$	t
	Interested	Not Interested			
Perceived Change-Orientation of the principal	14.38	9.92	15.89	1.3	3.43**
Perceived vertical communication with the principal	11.68	9.00	8.52	.952	2.81**
Perceived relationship with the principal	21.85	14.923	35.138	1.933	3.58**
Perceived level of participation in decision-making	13.44	10.54	12.97	1.174	2.47*
Perceived Superintendent's support	6.09	5.62	2.174	.481	.977 N.S.*
Perceived Principal's Support	7.71	5.39	3.78	.634	3.659**
Perceived Students' benefit	3.74	2.62	1.371	.381	2.94**

N.S.* Critical Ratio is not significant at .05 level of confidence

* Critical Ratio is significant at .05 level of confidence

**Critical Ratio is significant at .01 level of confidence

It is clear from Table 10 that the mean scores of the "Interested" group are higher on all the organizational variables than the mean scores of the "Not Interested" group. However, the critical ratio is not significant for the variable of "perceived superintendent's support for the innovation." Critical ratio is significant for all other organizational variables. These results suggest that when a teacher becomes interested in the innovation, he does not care whether the superintendent supports the innovation or not. But he is more likely to take interest in the innovation when he thinks that the principal is change-oriented, that the principal talks to him about the relevant subject matters, that there is a good relationship between him and the principal, that he can participate meaningfully in the relevant decision-making activities in the school, that the principal supports the innovation, and that the students benefit from the innovation used.

c. Evaluation Stage

On the basis of the responses, the total sample was divided into two groups. One group consisted of those respondents who did evaluate the innovation, and the other group consisted of those who did not. Scores on each of the organizational variables were obtained from the two groups. Mean scores were tested by using t test of significance. Statistics for the scores of the two groups on each

organizational variable are summarized in Table 11.

Table 11

Relationship between Organizational Variables and the
Evaluation Stage of Innovation-Adoption Process

Organizational Variables	Mean		S^2	$S_{\bar{x}_1} - \bar{x}_2$	t
	Innovation Evaluated	Innovation Not Evaluated			
Perceived change-orientation of the principal	14.74	9.00	13.17	1.18	4.86**
Perceived vertical communication with the principal	11.65	9.08	8.64	.959	2.68**
Perceived relationship with the principal	22.18	14.07	31.46	1.828	4.43**
Perceived level of participation in decision-making	13.79	9.62	11.08	1.09	3.82**
Perceived superintendent's support	6.12	5.54	1.35	.378	1.53 N.S.*
Perceived principal's support	7.88	4.92	1.99	.459	6.44**
Perceived students' benefit	3.91	2.15	.98	.324	5.43**

N.S.* Critical Ratio is not significant at .05 level of confidence

* Critical Ratio is significant at .05 level of confidence

** Critical Ratio is significant at .01 level of confidence

Table 11 shows that the critical ratio is not significant for the variable of "perceived superintendent's support of the innovation." This finding suggests that when a teacher tries to evaluate the innovation for its applicability in his own situation, and decides one way or the other about its adoption, he does not care whether the superintendent supports the innovation or not.

It is also evident from Table 11 that the mean scores of those respondents who did evaluate the innovation, are higher than the mean scores of those respondents who did not evaluate it. Critical ratio is significant for all organizational variables except for "perceived superintendent's support." These results indicate that a teacher is more likely to evaluate the innovation for its applicability in his own situation, when he thinks that the principal is change-oriented, that the principal talks to him about the relevant subject matters, that there is a good relationship between him and the principal, that he can participate meaningfully in the decision-making activities in the school, that the principal supports the innovation, and that the students benefit from the innovation used.

d. Trial Stage

On the basis of the responses, the total sample was divided into two groups. One group consisted of those

respondents who tried the innovation on a small scale and the other group consisted of those respondents who did not try it. Scores on each of the organizational variables were obtained for the two groups. Mean scores were tested by using t test of significance. Statistics for the scores of the two groups on each organizational variable are summarized in Table 12.

Table 12
Relationship between Organizational Variables and the
Trial Stage of Innovation-Adoption Process

Organizational Variables	Mean		S^2	$S_{\bar{x}_1} - \bar{x}_2$	t
	Innovation tried	Innovation not tried			
Perceived Change-orientation of the principal	15.41	10.1	12.85	1.06	5.00**
Perceived vertical communication with the principal	12.07	9.4	8.19	.844	3.16**
Perceived relationship with the principal	23.33	15.35	28.90	1.58	5.03**
Perceived level of participation in decision-making	14.30	10.4	10.85	.972	4.01**
Perceived superintendent's support	6.33	5.45	2.02	.42	2.09*
Perceived principal's support	9.67	5.95	1.97	.415	8.95**
Perceived students' benefit	3.74	2.65	1.82	.397	2.74**

* Critical Ratio is significant at .05 level of confidence

**Critical Ratio is significant at .01 level of confidence

Table 12 shows that the mean scores of those respondents who tried the innovation on a small scale to determine its usefulness, are higher than the mean scores of those respondents who did not try it. Critical ratio is significant for all the organizational variables. These results indicate that a teacher is more likely to try the innovation on a small scale to determine its usefulness, when he thinks that the principal is change-oriented, that the principal talks to him about the relevant subject matters, that there is a good relationship between him and the principal, that he can participate meaningfully in the decision-making activities in the school, that the superintendent supports the innovation, that the principal supports the innovation, and that the students benefit from the innovation used.

e. Adoption Stage

On the basis of the responses, the total sample was divided into two groups. One group consisted of those respondents who adopted the innovation and was referred to as the "Adoption" group. The other group consisted of those respondents who did not adopt the innovation and was referred to as the "Non Adoption" group. Scores on each of the organizational variables were obtained for the Adoption and Non Adoption group. Mean scores were tested by using t test for significance. Statistics for the scores of the two groups

on each organizational variable are given in Table 13.

Table 13

Relationship between Organizational Variables and the
Adoption Stage of Innovation-Adoption Process

Organizational Variables	Mean		S^2	$S_{\bar{x}_1} - \bar{x}_2$	t
	Innovation adopted	Innovation not adopted			
Perceived change-orientation of the principal	15.39	9.84	12.29	1.04	5.33*
Perceived vertical communication with the principal	12.07	9.26	8.03	.84	3.34**
Perceived relationship with the principal	23.07	15.32	30.04	1.62	4.75**
Perceived level of participation in decision-making	14.21	10.32	10.91	.98	3.96**
Perceived superintendent's support	6.39	5.32	1.93	.41	2.58*
Perceived principal's support	8.36	5.16	2.33	.45	7.04**
Perceived students' benefit	4.07	2.47	.99	.29	5.44**

* Critical Ratio is significant at .05 level of confidence

**Critical Ratio is significant at .01 level of confidence

It is evident from the Table 13 that the mean scores of the Adoption group are higher than the mean scores of the Non Adoption group. Critical ratio is significant for all the organizational variables. These results suggest that a teacher is more likely to adopt innovation when he thinks that the principal is change-oriented, that the principal talks to him about the relevant subject matters, that there is a good relationship between him and the principal, that he can participate meaningfully in the relevant decision-making activities in the school, that the superintendent supports the innovation, that the principal supports the innovation, and that the students benefit from the innovation used.

III. Summary of the Findings

There is no relationship between personal characteristics and innovation-adoption. The complete process of innovation-adoption by a teacher is independent of his age, sex, education, income or teaching experience.

The superintendent's support is not necessary for a teacher to become interested in the innovation and to evaluate it for its applicability.

Teachers are more likely to try the innovation and to adopt it when they think that the superintendent supports the innovation.

Teachers are more likely to take interest in the innovation, and they are more likely to evaluate, try, and adopt it when they think that the principal is change-oriented, that the principal talks to them about relevant subject matters, that there is a good relationship between them and the principal, that they can participate meaningfully in the relevant decision-making activities in the school, that the principal supports the innovation, and that the students benefit from the innovation used.

CHAPTER V

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This chapter presents the conclusions, implications, and recommendations emerging from this study. On the basis of the findings, conclusions, and implications, recommendations are made focusing upon the improvement of social relationships between the principal and the teachers. Recommendations for further research in this problem area are also suggested.

Conclusions

The following conclusions are drawn from the findings of the study:

1. The innovation-adoption process is not related to the personal variables, i.e., age, sex, education, income, and teaching experience.

2. The innovation-adoption process is related to the organizational variables, i.e., change-orientation of the principal, vertical communication with the principal, relationship with the principal, participation in decision-making, principal's support of the innovation, and students' benefit from the innovation used.

3. Organizational variable of the superintendent's

support of the innovation is not related to the interest-information stage and evaluation stage of the innovation-adoption process, although it is related to the trial stage and adoption stage.

Further, following hypotheses are formulated as a result of the study which now require a test in future research:

1. The superintendent's support is not necessary for a teacher to become interested in the innovation and to evaluate it for its applicability.

2. Teachers are more likely to try the innovation and adopt it when they think that the superintendent supports the innovation.

3. Teachers are more likely to take interest in the innovation, evaluate, try, and adopt it when they think that the principal is change-oriented.

4. Teachers are more likely to take interest in the innovation, evaluate, try, and adopt it when they think that the principal talks to them about relevant subject matters.

5. Teachers are more likely to take interest in the innovation, evaluate, try, and adopt it when they think that there is a good relationship between them and the principal.

6. Teachers are more likely to take interest in the innovation, evaluate, try, and adopt it when they think that they can participate meaningfully in relevant decision-making activities.

7. Teachers are more likely to take interest in the innovation, evaluate, try, and adopt it when they think that the principal supports the innovation.

8. Teachers are more likely to take interest in the innovation, evaluate, try, and adopt it when they think that the students benefit from the innovation used.

Since the data was obtained from a fairly small sample, the findings and conclusions drawn from the study are applicable to the sample only. No generalizations can be made regarding teachers in general.

Implications

The present research has significant implications for educators at all levels of the educational structure. Perhaps the most pertinent among the implications of this study are those which concern superintendents and others involved in the selection and training of new principals. It has been suggested as a result of the findings that the principal is the key figure in promoting innovation-adoption and thus overall educational change.

Findings of this study imply that in an attempt to promote educational change, attention should be focused upon the social structure and interpersonal relationships of the school system within which the teacher is a member. This potential linkage between the school administrator and the

teacher has implications for future research focusing on organizational variables. There are now reasons, based on the findings of this study, to posit the importance of improving social relationships between administrators and teachers by creating a friendly and cohesive atmosphere among the teachers. While these objectives may not be easily accomplished, they do suggest where operational attention might be focused if educational change is to be more readily achieved.

A further implication of this research would be that in an educational organization where it may be more difficult to offer financial and other extra benefits than in an industrial organization, faculty discussion and participation in decision-making may be the most efficient and effective way of ensuring acceptance of educational change.

Recommendations

Based on the findings of the study, it is recommended that the emphasis be placed on the social structural aspects of the school system in order to lessen potential resistance to innovation and change. To accomplish this goal, it is suggested that social relationships between the principal and teachers be improved as much as possible by:

1. having the principal openly demonstrate his interest in and support for innovations and educational change,

2. having the principal frequently discuss the teaching problems and other related matters with the individual teachers,

3. encouraging a friendly and understanding relationship between the principal and the teachers, and

4. providing teachers with the opportunity to participate meaningfully in school decisions which may affect them.

While the empirical findings and theoretical insights gleaned from the present study are encouraging, a great deal remains to be learned about the process of innovation-adoption and educational change. The following comments are offered with a view toward encouraging the advancement of research in the area:

1. This study should be replicated in different types of schools (e.g., primary, secondary, post secondary schools, colleges) and other types of organizations (e.g., industrial or business organization).

2. Cross-cultural replication should provide practical and theoretical value.

3. Emphasis should be put on study of the consequences resulting from the innovations in a school system, as well as on the components and functions of institutional feedback and reinforcement. The latter largely has been ignored in previous research.

It has been assumed throughout the study that the development and introduction of innovations into a school system is a necessary ingredient in the process of educational change. Investigation of how innovation is introduced into a school system, how the members of the school system react to the innovation, and the consequences of the innovation, all are within the research domain of educational innovation studies.

Any educational innovation should be evaluated in terms of its impact, positive and/or negative, upon the students and the school system as a whole. There is a prevalent assumption that innovation or change is by definition desirable. The assumption is hypothetical and implies prejudgement of the positive consequences of the innovation. Certain instances of resistance to innovation may be justifiable. Thus, study of the consequences of innovation should occupy a priority position in future research efforts.

The present study has provided some insight into the process of innovation-adoption among teachers. Further investigations should contribute to the development of theory and practice in educational change.

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APPENDIX

QUESTIONNAIRE

I. Personal Identification

Please check (✓) one category that applies to you.

AGE

- | | |
|----------------|---------------------|
| 1. 20-24 _____ | 6. 45-49 _____ |
| 2. 25-29 _____ | 7. 50-54 _____ |
| 3. 30-34 _____ | 8. 55-59 _____ |
| 4. 35-39 _____ | 9. 60 or over _____ |
| 5. 40-44 _____ | |

SEX

- | | |
|---------------|-----------------|
| 1. Male _____ | 2. Female _____ |
|---------------|-----------------|

EDUCATION

- | | |
|-------------------------|-------|
| 1. 1-3 Years of College | _____ |
| 2. Bachelor's Degree | _____ |
| 3. 5 Years Joint Degree | _____ |
| 4. Graduate Diploma | _____ |
| 5. Masters Degree | _____ |
| 6. Other (specify) | _____ |

INCOME

- | | |
|----------------------------|------------------------------|
| 1. Less than \$5,000 _____ | 5. \$8,001 - \$9,000 _____ |
| 2. \$5,001 - \$6,000 _____ | 6. \$9,001 - \$10,000 _____ |
| 3. \$6,001 - \$7,000 _____ | 7. \$10,001 - \$11,000 _____ |
| 4. \$7,001 - \$8,000 _____ | 8. \$11,001 - \$12,000 _____ |
| | 9. \$12,000 and above _____ |

TEACHING EXPERIENCE

- | | |
|---------------------------|-----------------------------|
| 1. Less than 1 year _____ | 5. 13 - 16 years _____ |
| 2. 1 - 4 years _____ | 6. 17 - 20 years _____ |
| 3. 5 - 8 years _____ | 7. More than 20 years _____ |
| 4. 9 -12 years _____ | |

- II. For purposes of this study, ability grouping is defined as the classifications of pupils for the purpose of forming instructional groups having a relatively high degree of similarity in regard to certain factors that affect learning.
-

Please check (✓) one category that applies to you.

1. Have you heard about ability grouping?
 1. Yes _____
 2. No _____
2. Did you obtain additional information about it?
 1. Yes _____
 2. No _____
3. Did you decide whether or not to use it in your classroom?
 1. Yes _____
 2. No _____
4. Did you try it on a small scale to determine whether it is useful?
 1. Yes _____
 2. No _____
5. At present do you use ability grouping in your classroom regularly?
 1. Yes _____
 2. No _____

III. FOR THE FOLLOWING ITEMS, PLEASE CIRCLE THE NUMBER OF THE ONE CATEGORY WHICH YOU FEEL IS APPROPRIATE.

1. My principal can adjust to changes easily.

1. Strongly agree	4. Disagree
2. Agree	5. Strongly disagree
3. Undecided	
2. My principal believes that we could have done a much better job, or at least done just as well, if things hadn't been changed so much in our schools.

1. Strongly agree	4. Disagree
2. Agree	5. Strongly disagree
3. Undecided	

3. My principal thinks that most changes introduced in the last ten years have contributed very little in promoting education in our schools.
 1. Strongly agree 4. Disagree
 2. Agree 5. Strongly disagree
 3. Undecided

4. My principal thinks that if we want to maintain a healthy, stable educational system we must keep it the way it is and resist the temptations to change.
 1. Strongly agree 4. Disagree
 2. Agree 5. Strongly disagree
 3. Undecided

5. My principal talks to me about the problems of teaching my subject matter(s)
 1. Much more frequently 4. Less frequently
 2. More frequently 5. Much less frequently
 3. Undecided

6. My principal talks to me about discipline problems
 1. Much more frequently 4. Less frequently
 2. More frequently 5. Much less frequently
 3. Undecided

7. My principal talks to me about change (new programs), gets my ideas for new programs and changes in the present program.
 1. Much more frequently 4. Less frequently
 2. More frequently 5. Much less frequently
 3. Undecided

8. Staff meetings with the principal are scheduled
 1. Weekly 4. On an ad hoc basis (when needed)
 2. Bimonthly
 3. Monthly 5. Never

9. My principal is usually very warm and understanding when he talks to me.
- | | |
|-------------------|----------------------|
| 1. Strongly agree | 4. Disagree |
| 2. Agree | 5. Strongly disagree |
| 3. Undecided | |
10. My principal makes me feel at ease when speaking with him.
- | | |
|-------------------|----------------------|
| 1. Strongly agree | 4. Disagree |
| 2. Agree | 5. Strongly disagree |
| 3. Undecided | |
11. My principal usually doesn't explain his decisions about matters which involve me.
- | | |
|-------------------|----------------------|
| 1. Strongly agree | 4. Disagree |
| 2. Agree | 5. Strongly disagree |
| 3. Undecided | |
12. My principal is friendly to me and I can easily approach him.
- | | |
|-------------------|----------------------|
| 1. Strongly agree | 4. Disagree |
| 2. Agree | 5. Strongly disagree |
| 3. Undecided | |
13. My principal acts on things which may involve me without consulting me first.
- | | |
|-------------------|----------------------|
| 1. Strongly agree | 4. Disagree |
| 2. Agree | 5. Strongly disagree |
| 3. Undecided | |
14. My principal gets along with me very well.
- | | |
|-------------------|----------------------|
| 1. Strongly agree | 4. Disagree |
| 2. Agree | 5. Strongly disagree |
| 3. Undecided | |
15. In our staff meetings the consensus of opinion may influence change in the programs, instruction, and procedures.
- | | |
|---------------------|-----------|
| 1. Always | 4. Seldom |
| 2. Most of the time | 5. Never |
| 3. Sometimes | |

16. My principal usually asks my opinion when he is confronted with a problem that involves my work.

1. Strongly agree	4. Disagree
2. Agree	5. Strongly disagree
3. Undecided	

17. I am consulted about a specific problem, but my suggestions are never used.

1. Strongly agree	4. Disagree
2. Agree	5. Strongly disagree
3. Undecided	

18. I can influence the decisions of the principal regarding things (about which I am concerned)

1. Strongly agree	4. Disagree
2. Agree	5. Strongly disagree
3. Undecided	

19. Our superintendent keeps us informed about change, upgrading, etc.

1. Strongly agree	4. Disagree
2. Agree	5. Strongly disagree
3. Undecided	

20. Our superintendent supports ability grouping.

1. Wholeheartedly	4. Not very much
2. Somewhat	5. Not at all
3. Not sure	

21. My principal keeps us informed about change, upgrading etc.

1. Strongly agree	4. Disagree
2. Agree	5. Strongly disagree
3. Undecided	

22. My principal supports ability grouping.

1. Wholeheartedly	4. Not very much
2. Somewhat	5. Not at all
3. Not sure	

23. My personal view regarding use of ability grouping is that the students

- | | |
|---------------------|--------------------------|
| 1. Benefit greatly | 4. Do not benefit much |
| 2. Benefit somewhat | 5. Do not benefit at all |
| 3. Not sure | |





