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IN THE LOUISVILLE ELEMENTARY-PAROCHIAL SCHOOLS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

Sister Frances Loretto Yowaiski, S.C.N., A.B., M.A.

The Ohio State University
1965

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CHAPTER I

THE PROBLEM

Introduction

On all fronts, educators are being called upon to solve the basic problems of elementary school instruction throughout the United States. Many of these problems are a direct result of a rapidly changing society. The recent strains upon school people as they try to adjust to this new era in education are symptomatic of the distance many schools still have to go before they offer an adequate program for our times. But once such a program does emerge, one can be sure that it will not remain adequate for long. Newer ideas will appear, and there will again be demands for change.

While a massive reformulation of what is to be taught and learned in schools is underway, Goodlad points out that curriculum change in the elementary school is "spotty, tentative, and somewhat experimen-
tal in character.¹ Beauchamp also comments on this matter:

The twentieth century has produced the most dramatic changes in the elementary school. New teaching methods were associated with new types of curriculum organization. The study of the curriculum as a dimension of education was begun for the first time in the history of man. Finally, reaction has set in against many of the innovations, leaving us on the threshold of an unidentified new era in curriculum and in all professional education.²

The decisions of curriculum planners which most intimately affect the lives of pupils are those related to the selection of the school subjects and their content. Decision-making in the past has stemmed from two classic sources: the nature of the learner and the learning process and the impact of society. Doll states that an additional source for decision-making is the nature and uses of subject matter itself. He maintains that

The nature of subject matter has come to the fore as a criterion of content selection, and thus of curriculum improvement, for three major reasons:

1. Knowledge has exploded to a point where it is necessary to select for teaching those items of knowledge that seem most significant, and to eliminate much that is inconsequential.


2. Subject specialists have recently had more to say about the nature of their fields and about the teaching of these fields.

3. Experiments are being directed toward showing that subject matter, old and new, can be placed in previously unthought-of locations in the life space of learners.\(^3\)

While curriculum improvement is created consciously by persons both inside and outside the school, numerous authorities point to the local school as being the basic unit for curriculum improvement. Shuster and Ploghoft state that this places the principal in a strategic position for promoting improved learning.\(^4\) The principal, being in closest relationship with his faculty and knowing their strengths and weaknesses, can involve faculty members to the best advantages. Anderson asserts that the superintendent usually delegates responsibility for curriculum leadership to principals in the school building.\(^5\)

The importance of the status leader of any group


cannot be over-emphasized as it relates to the effectiveness of group operation. Doll describes the role of the principal as the status leader in curriculum improvement as follows:

The principal who is a truly effective leader in curriculum improvement exhibits certain behaviors which make him distinctive... he epitomizes the best in leadership by manifesting executive ability and maintaining desirable human relations, and he accomplishes his work in the most strategically important place in the school system—the individual school.6

While a modern, adaptable curriculum is essential to good schools, curriculum developers recognize that the classroom teacher is the most important person in the curriculum improvement program. The success of the entire effort to improve learning experiences for children may be measured by the amount of change which actually is reflected in classroom practice. In other words, the teacher must breathe life into the curriculum.

Urick and Frymier, commenting on the importance of local school officials and faculty members in bringing about improvement in instructional practices, claim that in these same groups the major barriers to change are found.7 The school administrator who lacks knowl-

6Doll, op. cit., p. 167.

edge of sound curriculum practices will, no doubt, be hesitant to permit teachers to implement new ideas. The teacher who views curriculum as an emerging educational experience will, of necessity, see his role as being much more involved and much more demanding than if he were to view the curriculum as a "fixed plan" for the education of children. Thus, the way in which the principal and the teacher perceive curriculum change has significant implications for the implementation of curriculum improvement.

Statement of the Problem

In the school year of 1958-59, the "Seeing through Arithmetic" program, published by Scott, Foresman Company, was introduced into all the first grades of the parochial elementary schools in the Archdiocese of Louisville, Kentucky. This step was taken only after a pilot study had been conducted during which four different arithmetic programs had been used and evaluated.

The "Seeing through Arithmetic" Program was the result of the efforts of recognized mathematicians of Scott, Foresman Company who began to work on the program in 1942. The authors set about to provide a more adequate kind of mathematics program for the times that would be mathematically, educationally, and psychologically sound from the first grade on through college.
They built a program on fundamental mathematical ideas and principles which underlie the entire structure of mathematics.

The original books for grades 1 and 2 were published in 1948 and 1951 respectively. The books for grades 3-6 were offered in the original editions in the 1950's. "Seeing through Mathematics," a continuation of the program through grades 7-9, was the result of the Scott, Foresman Experimental Mathematics Project carried on from 1959 through 1961. This material was introduced into the seventh grade in the fall of 1963 and into the eighth grade in the fall of 1964.

During this seven-year period, 1958-1965, an intensive in-service education program was conducted to help prepare the teachers to handle the material in the new series. This program included workshops and meetings, supervisory assistance, formal classes, direct use of materials, and other activities.

The purpose of this study is (1) to investigate staff perception of the effectiveness of the different types of in-service education which accompanied the change in the mathematics program in the parochial schools of Louisville, Kentucky: (2) to ascertain staff views with regard to future innovations in other subject matter areas such as language arts and social
studies; and (3) to discover the types of in-service education activities these staff members would recommend for future in-service programs planned to accompany other major curriculum changes.

In other words, the purpose of this study is to answer the following questions:

1. Do religious teachers and lay teachers in this school district hold the same view of the in-service program developed to prepare teachers to meet the challenges of the new mathematics program?

2. Do non-teaching and teaching principals hold the same views concerning the in-service education program, future curriculum changes and accompanying in-service programs?

3. What is the difference, if any, in the way in which primary teachers and upper grade teachers feel about present and future in-service education programs?

4. Does the length of time teachers had participated in an in-service program affect their views of curriculum change and in-service education?

5. What are the effects of age in determining the way teachers perceive curriculum change in different subject matter areas and the accompanying in-service programs?
Importance of the Study

Staff perception of curriculum change has frequently been stressed as of primary importance in the present period of innovations. Yet professional literature provides strong evidence that professional suspicion about the values of innovations in other school systems and even about the sincerity of other innovators is a widespread and serious inhibitor of educational change.  

In the fall of 1958, this modern program in arithmetic was introduced into the first grade in all the parochial schools in the Archdiocese of Louisville. Each year, the new program moved into the next higher grade. This was the pattern followed with the exception of the third year when the new program was moved into the third and fourth grades in the same year. In the fall of 1964, the plan was completed with the introduction of the program into the eighth grade. Thus, the principals and teachers in these schools have experienced the implementation of an innovation in the curriculum in the area of arithmetic. One purpose of this study is to secure a clear picture of staff perception of the in-service education program

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as well as their perception of future innovations in such fields as language arts and social studies.

A second reason for this study is to discover the type of in-service education that principals and teachers believe to be most appropriate in future in-service education programs. It is believed that such information could serve a valuable purpose. School administrators can plan more intelligently for change if they are aware of agreement or disagreement with certain proposals.

Since Louisville and its suburban area comprise a large, rather typical American city with a parochial school enrollment of 34,797 students, it is believed that many of the observations made by the respondents of this study would apply, to a very considerable degree, to other cities and parochial school systems.

**Limitations of the Study**

1. The schools used in this study belong to only one type of school system.

2. The investigation applies only to the parochial schools in the city of Louisville and its suburban areas which constitutes only part of the school system of the Archdiocese of Louisville, Kentucky.

3. The study is limited to schools in which the religious teachers belong to only six religious
teaching orders of religious women. There are over 700 such orders in the United States.

4. The nature and use of any questionnaire forces one to accept the responses volunteered as fact. Only the stated responses will be analyzed as no visitations are to be made.

Definitions of Terms Used

1. Principal. Throughout the report of this investigation, the term "principal" refers to a member of a religious order of women who is the administrator of an elementary school.

2. Elementary Schools. The schools used in this study include grades K-8.

3. Parochial Schools. The term "parochial schools" refers to Catholic schools connected with a parish.

4. Teaching Members of a Religious Order. In the schools used in this study, over one-half of the teachers belong to Religious Order of Women and wear distinctive religious garb.

5. Lay Teachers. The term "lay teachers" refers to the male or female teachers in parochial schools who are not members of a religious order.

6. In-Service Education. This term refers to activities which are designed, usually by an individual in a status position, to bring about teacher growth while in service.
Basic Assumptions

In proposing this study, certain basic assumptions have been made:

1. A massive reformulation of what is to be taught and learned in the schools of the United States is under way.

2. By nature of its content and function, the curriculum is dynamic and emerging and continuous attention must be given to it.

3. The local school is the basic unit for curriculum improvement.

4. The school principal is in a key position to promote or hinder sound curriculum practices.

5. Teachers are the most important people in the curriculum improvement program.

6. Curriculum must be approached at the level of the teacher's understanding about the instructional practices.

7. The quality of a school system depends largely on the quality of its in-service provisions.

Hypotheses

Based upon these assumptions, five chief hypotheses were proposed:

1. There is no difference in the way religious and lay teachers perceive the in-service education program used to accompany the curriculum change in mathematics and in the way they view future in-service programs.
2. There is no difference in the perception of teaching and non-teaching principals in regard to the in-service education program used to prepare teachers for a curriculum change in the area of mathematics, future curriculum changes and future in-service educational programs.

3. Teachers, regardless of age, view in-service education and curriculum changes in the same way.

4. The number of years that a teacher has participated in a curriculum change and the accompanying in-service education program will not affect his evaluation of them.

5. Primary teachers and upper grade teachers do not differ in their views of curriculum changes and in-service education programs.

Approach to the Problem

To achieve the objectives of this research, a questionnaire was used to collect data. A letter from the Superintendent of the Archdiocese of Louisville accompanied each questionnaire.

This instrument was designed to obtain information to determine the perception of principal and teacher toward (1) the in-service education program which accompanied the change in the mathematics program; (2) the possibility of future innovations in other subject matter areas such as language arts and social studies; (3) the nature of future in-service programs as a means of curricular improvement.
The questionnaire was distributed through the Catholic School Board Office in Louisville, Kentucky to all the principals and teachers in the 70 parochial elementary schools in Louisville and its suburban areas.

Literature related to this research was analyzed to serve as a guide in formulating the questionnaire. The data received from all the respondents were analyzed. The information found in the literature and the findings from the questionnaire were then used to propose recommendations for the implementation of future curricular innovations.

**Organization of the Study**

Chapter I  Introduction
Chapter II  Review of the Literature
Chapter III Methodology of the Study
Chapter IV  Interpretation of Data
Chapter V  Summary, Conclusions, and Recommendations
CHAPTER II

REVIEW OF THE LITERATURE

**Definition of In-Service Education of Teachers**

In-service education means various things to different people. Often writers imply that the jobs of supervision and in-service education are identical.\(^9\) Cushman and Taulane indicate that in-service education, supervision and curriculum development are in the main inseparably woven together.\(^10\) Harris, however, makes this distinction:

Curriculum development, staff development, and certain other supervisory tasks are primarily concerned with changing things which might improve learning, or they are concerned with changing the relationship between people and things. A useful distinction is made in considering in-service education as a task aimed at changing people that they might improve the learning experience of children.\(^11\)

Certainly, all three areas are directed toward continuing the education of the teacher but the primary aim of in-service education is changing the behavior of teacher per-

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sonnel in ways that will improve instruction. A clear and forceful statement concerning the nature of in-service growth is found in the reports of the New Hampshire Conference of the National Committee on Teacher Education and Professional Standards. McFarland says:

In-service growth is that growth which takes place after the teacher is on the job. It is a continuation of the professional development which was begun during the pre-service period of preparation. In-service education is a process inherent in any planned program designed to make the individual a more effective teacher. This type of education should be an integral part of any school program.\(^{12}\)

The Need for In-Service Education for Teachers

The nature of teacher education

For approximately half a century the professional literature has reflected a growing awareness of the relationship between the continued development of the staff-in-service and the improvement of the instructional program. One of the reasons why in-service education is needed is that pre-service education is inadequate. Even though a teacher may finish an excellent program of teacher preparation, teacher education is always general rather than specific. Milliken emphasizes this idea thus:

In-service education programs which address themselves to the task of bridging the gap be-

tween the general professional education of teachers and the specific demands of a particular school are a must in a school district whose new teachers include those teaching for the first time.¹³

Increasing standards of pre-service education do not necessarily lessen the need for continued in-service education. A teacher may enter the teaching field well-prepared and teach in a well-equipped progressive school system, but if he continues to teach the same way for ten years, he has lost much of his opportunity to improve. With changing conditions, only study and growth in-service will provide teachers sufficiently up-to-date with the tasks at hand.¹⁴

Mobility of the teaching force

The rate of turnover in most school staffs is high. New recruits come from teaching preparatory institutions operating on diverse patterns of teacher education. They come from school systems with different curriculum patterns and ways of operating. Some are returning after rearing a family. A Research Bulletin of the National Education Association reports that the need for in-service education is furthered by the fact that local school faculty members have difficulty working together because of divergent


viewpoints regarding the purpose of education. Many times this is due to the different patterns of thinking in the geographic areas from which teachers come.

The administrator faces the task of welding the teachers on his staff into a group which will be able to surmount these many differences as they work for the betterment of the educational program. This task will become more formidable each year as the trend in teacher mobility becomes greater.

Increase in knowledge

With the current explosion of knowledge the future seems to be running away from the present. The curriculum is being shaped by a greater constellation of forces than ever before in history, resulting in new subject matter development in nearly every field. Information which was vital and useful during the teacher's student days can quickly become outdated and outmoded. Today's teachers of children and youth must continually "run to keep from falling behind."  


This concern is expressed in the report of the task force on New Horizons in Teacher Education and Professional Standards thus:

The explosion of knowledge in today's world... is that new information, new facts, new principles are being introduced at a rapid pace, often extending or displacing entirely established generalizations and sometimes initiating whole new bodies of knowledge or new organizational structures for old bodies of knowledge.17

Similar concern is expressed in the report of the Project on Instruction which states that "probably the most important single factor forcing change upon education is the explosion of knowledge—the 'information revolution.'"18

Taylor points out that in a recent study conducted at San Francisco State College, teachers identified subject matter as an overwhelming first in the desire for additional training.19 Since one of the marks of a profession is that its members seek constantly to keep abreast of the new knowledge germane to its activities, the increase of knowledge is one of the strongest reasons for an in-service program in every school.


Continuing cultural and social changes

Ours is a society which constantly confronts new issues at home and abroad. Haas points out that education must give attention to the complexities of modern life and the role of the United States in world affairs. The American system of education plays a vital role in the development of human talents that are needed in facing the problems of America's future.

Margaret Mead argues for in-service education "which will permit the teacher to keep abreast of a changing world" and goes on to say:

Within the lifetime of ten-year olds, the world has entered a new age, and already, before they enter the sixth grade, the atomic age has been followed by the age of the hydrogen bomb, differentiated from the atomic age in that many of those who failed to understand the dangers of the atom bomb are painfully beginning to take in the significance of the hydrogen bomb. Teachers who never heard a radio until they were grown have to cope with children who have never known a world without television. Teachers who struggled with a buttonhook find it difficult to describe a buttonhook to a child bred up among zippers, to whom fastnesses are to be breached by zipping them open rather than fumblingly feeling for mysterious buttons.

Scientific developments result in technological changes which are remaking our way of life. The youngster of today does not learn about life only from the immediate

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20 Haas, op. cit., p. 15.
family; he gets information and conduct signals from all corners of the globe. An editorial in Educational Leadership comments upon social changes in this way:

These vast social changes come at a time when our profession in the United States is maturing. As teaching becomes more of a profession and less of a procession, more teachers are removed from their pre-service training than ever before. The training they received even a decade ago is inadequate today either as to substance or as to methodology. This underlies the demand for effective in-service education.22

**Personal and professional growth**

Scientific development and new knowledge are not confined to the physical sciences. There has been much knowledge developed in such areas as child development, principles of learning, human relations, psychology and mental health. The teacher finds in this new knowledge a conviction of the "greatness of his profession, its significance to society, and its power to help boys and girls."23 Helping teachers to accept the challenges that such knowledge offers them creates a readiness to participate in in-service education. It awakens a sense of worth of the teaching profession and stimulates teachers to ever greater efforts to use their abilities to the utmost.


23 Haas, op. cit., p. 31.
A Brief History of In-Service Education in the United States

One of the striking characteristics of the teaching profession has been its emphasis on the continued education of the teacher while in service. The concept of in-service education has undergone many changes in its historical development. Yeager maintains that there are seven methods of in-service improvement which have persisted through time, although modified in form and varying usefulness: (1) teachers' institutes, (2) reading circles, (3) correspondence and extension courses, (4) summer sessions, (5) sabbatical and similar leaves, (6) supervision, and (7) workshop movement.24

The teachers' institute

The teachers' institute came into existence through the efforts of Henry Barnard who organized the first of its kind in Hartford in 1839. Its purpose was to provide information and techniques which the limited pre-service of that time could not include. In the next decade, such institutes were held in New York, Massachusetts, Rhode Island, New Hampshire, Maine, Pennsylvania, Ohio, Michigan, and Illinois.

Elsbree describes these institutes:

These assemblies were commonly held once or twice a year for two or more weeks; and in some instances, six or eight weeks. They were not intended to serve as a substitute for academic training

but were established as a supplementary agency to provide a brief course in the theory and practice of teaching adapted to the common schools. At first, they were purely voluntary and their expenses were borne by the teachers themselves. Then interested citizens came to the rescue and private contributions relieved the burden of cost to teachers. The policy was soon supplanted by public support in many states.

These institutes were attempts in in-service training and, despite the intentions of the founders to stress methodology, many of the early institutes placed considerable emphasis upon subject matter. Elsbree states:

The nature of the topics considered depended to a large extent upon the imagination and wisdom of institute leaders. There was a noticeable tendency to broaden the subject matter as the institute movement developed and to include in the programs a discussion of philosophical principles as well as detailed methods and procedures.

Caswell states that the content and organization of the institute programs down to the present time have persisted in the pattern of supplementary or remedial instruction. Reavis and Judd note that today's institutes are much shorter in length having gradually decreased to a single day or at most to two or three days.

26 Ibid., p. 159.
Reading circles

While the reading circles originated in London about 1870, it was the Chautauqua movement which gave impetus to the movement in this country. Malcolm Knowles states "that these reading circles were of great value in encouraging teachers, especially rural teachers, to become professionally prepared through selected literature." Lombard in 1925 reported that one-half of the states were provided with opportunity for professional improvement by state departments of education through reading circle work which the departments either sponsored or conducted.

Yeager notes uses for this method as follows:

Many uses have been found for professional readings, as (1) prescribed course of study upon which examinations were based, (2) supplementary professional reading in methods, content, and general culture, (3) introduction of new books and techniques, and (4) stimulation of teachers toward constant improvement while teaching. Many states have provided reading circles upon which examinations are held, certificates issued, and/or credits given.

While reading circles do not have the same professional significance as they did fifty years ago, lists of books of both general and professional nature are still recommended

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31Yeager, op. cit., p. 271.
by professional organizations. Many school systems today maintain a library of professional literature available to all staff members.

**Correspondence and extension work**

The extension movement and instruction by correspondence were brought to America from England in 1873 in the form of the Society to Encourage Studies at Home. In 1883 a correspondence university was established at Ithaca, New York. At the same time, Dr. William Harper, President of the University of Chicago, initiated correspondence as a method of university extension. Lins states:

> The students were enrolled in 1892. In the year 1908-09, there were 2386 enrolled with 132 teachers giving instructions in 335 courses. The Universities of Wisconsin, Brown, and Nebraska were quick to establish courses following the lead of the University of Chicago.32

The Chautauqua summer school contributed to the movement because many who attended these summer sessions wished to continue their work during the winter months.

Both university extension and correspondence courses have developed rapidly since 1910. In 1930, the United States Bureau of Education reported an enrollment of 195,547 students in extension courses and a similar increase in correspondence study was likewise reported.33

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33 Elsbree, op., cit., p. 389.
The work offered was planned to help teachers pass examinations for certification. Richey states that many institutions of higher learning, earlier wary of becoming involved in the training of teachers, rapidly organized and developed campus and off-campus programs to upgrade the entire teaching staff.34

Summer school

Summer school began with a study of special topics in the field of science because college professors conceived the idea that summer afforded the best opportunity for nature study. However, the influence of the Chautauqua movement was one of the prime factors which gave impetus to teacher training during the summer months.35

As soon as the summer school movement was well under way, state departments and other licensing agencies began to recognize summer school attendance in their regulations for granting higher licenses or for extending old ones.36

In 1931, the total summer attendance for the 555 colleges, universities, and teacher-training institutions reporting

36 Elsbree, op. cit., p. 375.
in a study conducted by the National Education Association reached 422,754.37

Elsbree has listed four influences which have contributed to the growth of summer school activities for teachers. They are (1) state certification; (2) salary recognition by local boards of education for increased professional training; (3) supervisory and administrative suggestions to recognize the need of teachers' keeping abreast with modern education demands; (4) the broadening of the scope of program to care for all the needs of all types of teachers.38

While the summer school has failed to achieve all that educators have expected, its advantages definitely outweigh the disadvantages and there is no indication of a waning interest in its activities. In 1961, Cammarota, Stoops, and Johnson stated that "a number of weeks of well-planned, concentrated work during summer months can give teachers an excellent opportunity to improve their professional competencies.39

Sabbatical and similar leaves

Granting sabbatical and similar leaves dates from the early 1900's but its development in elementary and secondary schools has been slow. Lins states "that in 1908 individual teachers received leaves for study, travel or rest, but organized systems of leave were not set up." 40

Today, a well-administered plan for professional leaves of absence is considered a valuable in-service training. Some states are permissive, allowing the local board of education to provide sabbatical leave; others make it mandatory for every local board of education to allow a certain percent of the staff leave for professional study. 41 The National Education Association has suggested desirable features of professional leave plans. 42

Supervision

Professional supervision of teachers has evolved from the lay function of inspection of schools. As early as 1709, in Boston, there was "the appointment of committees of citizens to visit and to inspect the plant and equipment and to examine pupil achievement." 43

40 Lins, op. cit., p. 706.


With the growth of cities and towns, a teacher was selected for certain administrative and managerial duties. In 1837, Buffalo and Louisville both established the office of superintendent of schools. Gradually emphasis shifted from administration, per se, to inspection of the work of teachers as a basis for evaluation, to rendering service to teachers by assistance in the improvement of instruction. Board members were slow in relinquishing supervisory functions. The principal, therefore, did not become an important supervisory officer until recently nor were there special supervisors under his guidance to carry on teacher improvement plans. Burton and Brueckner point out that special supervisors appeared between 1875 and 1900 as a result of such new subjects as art and music being added to the curriculum. It was at this stage that the supervisor as a "traveling teacher" appeared. Long states:

...supervision gradually shifted to the examination of teachers' work for the purpose of giving assistance.

Superintendents, principals and general supervisors were the administrators of this program. It was their responsibility to tell the teacher what and how to teach. Since the administrator or supervisor was supposed to be a more competent and educated person, the teachers became conditioned to prescription and direction.

44 Barr, Burton, and Brueckner, op. cit., p. 6.
Barr, Burton and Brueckner state that a number of excellent studies in supervision appeared between 1926 and 1930 which revealed important changes in the concept of supervision. These changes were foretold by Curtis:

Tomorrow the goal of supervision will be the facilitation of the natural process of growth of personality in teachers, a process which yields inevitably the important concomitants, sympathy with children and teaching power. It takes creative supervision to develop creative thinking.

Today supervision is conceived as effective only in terms of the individual teacher. The supervisory program looks for the competencies which each teacher possesses. It seeks to develop these competencies and to help to create new ones, for it constantly strives to let leadership grow in the people with whom the program works. By helping people find out what they can do, by guiding and helping them as they try to do it, and by assisting them as they evaluate what they have done, the supervisory program replaces dependence with independence. In other words, supervision develops a professional teacher. Frazier stresses the need for the professional teacher who "like any other professional person, is one who is free to test

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out new knowledge on his own terms and is supported in
to this if he can.\footnote{48}

The above statement implies the need for experimen-
tation on the part of the teacher. Wiles supports this
idea when he says:

The major emphasis in the supervisory role, as
I see it, is the encouragement of experimenta-
tion and the sharing of results with staff mem-
bers...It is important, if we hope to make chan-
ges, that we are helping teachers experiment in
terms of their areas of dissatisfaction and in
terms of their purposes...The thing we need to
be concerned about is the continued process of
growth rather than a single kind of growth that
is important to us.\footnote{49}

Workshops

One of the more recent methods of teacher improvement
is the workshop which was first inaugurated in 1936 when
35 teachers came together for intensive work representing
the schools associated in the Progressive Education Asso-
ciation's Eight Year Study of school-college relations.\footnote{50}

Ralph Tyler who invented the name of "workshop" calls
it "an arrangement whereby a teacher or a school officer
may work intensely on a problem which he brings from his


\footnote{49}{Kimball Wiles, "Supervision for the Sixties," (Paper
read at the Seventh State-wide Conference on Supervision,
State of Ohio Department of Education, Columbus, Ohio,
September 27, 28, 1962), p. 25.}

\footnote{50}{Lins, \textit{op. cit.}, p. 706.}
own school and may obtain the assistance of staff members of the teacher-training institution.\footnote{51}

Mitchell reporting on a study conducted by the North Central Association says:

...The workshop idea provides for individual growth through contact with a stimulating environment, part of which is the group with which the individual works. The workshop is a cooperative, participating action approach to learning. In it and through it new ideas are found, new ways to do old things are worked out, new skills developed, new knowledge acquired, and new stimulation secured for a still more effective job of teaching or administering schools.\footnote{52}

Within the Eight-Year Study, some attempts were made to evaluate the workshop program. A committee on workshops carried on a study to evaluate the effectiveness of the ten workshops in secondary education sponsored by the Progressive Education Association in the summer of 1939. A summarizing statement from this study is as follows:

...the teacher education should practice what it preaches. The workshops were most successful when they exemplified what they taught. They began with the interests and problems of teachers, and these teachers began using the same methods with their pupils. They exemplified an idea of democratic living, and the participants kept on practicing democracy in their schools...The tone, the life, and the work


\footnote{52}{James B. Mitchell, "The Workshop as an In-Service Education Procedure," \textit{The North Central Association Quarterly} XXVII (April, 1934), p. 429.}
of the workshops left their mark in the professional adjustment.

Curriculum Development as Related to In-Service Education

Yeager did not list curriculum development as a means of in-service education because the traditional curriculum was considered to be a "set body of subject matter which the teacher was expected to pass on to the pupil." However, in the 1930's, a much broadened concept of school curriculum emerged. The curriculum was no longer considered apart from the learner but as the actual experiences of the learner. Thus curriculum came to be defined as "all the experiences children have under the guidance of the teacher."

When all the elements in the experience of the learner are considered, the task of curriculum development reaches out into the fields of philosophy, sociology, and psychology as well as into the subject matter fields. The task then becomes one of working out a program which will assist the teacher in bringing the many and varied elements


in the experience of the learner into suitable relationships. Caswell shows how this concept of curriculum development changes the role of the teacher in curriculum improvement. He says:

Conventional curriculum programs have been largely concerned with the participation of teachers in the activities directly related to the improvement of courses of study or the preparation of committee reports. The concept of the types of appropriate teacher activities in the curriculum must be materially broadened. The most significant factor in the improvement of the curriculum is the improvement of the teacher himself. Unless the teacher is expanding his interests, deepening his insights, and modifying his views, little real improvement in the curriculum of the child may be expected. A program of curriculum development, therefore, must be concerned with the rounded and continuous growth of teachers as individuals.56

Thus, the programs for teacher growth should be geared to developing in teachers that type of motivation that will lead to goals which will become self-initiating and independent of intrinsic factors. This is essential if real change in classroom behavior is to result. Corey has this to say:

As has often been observed, we do least well in school or in in-service education programs or, in general, in our attempts to bring about changes in orientation, belief, or values which, in turn, effect a host of changes in specific practices. All too often, we concentrate on teaching a practice--teacher-pupil planning techniques, for ex-

ample—without doing anything to give assurance that change has taken place in the larger body of belief, attitude, and understanding that makes the practice sensible and deserving of application.57

A joint committee of the Department of Supervisors and the Directors of Instruction and the Society for Curriculum Study, in 1937, stressed the need for teacher-participation in both the planning and carrying out the program of improvement of instruction. It considered such involvement to be the most certain method of continuous growth on the part of teachers.58 Thus, teachers learn to work toward a common goal which is the essence of in-service education. Spears states:

...It is impossible to conceive an in-service program existing without curriculum study as its common carrier. Deprived of curriculum improvement in the classrooms of the participating teachers, in-service growth would become an individual matter, and the effort would become diffused into a miscellany of disconnected activities that are followed by teachers as individuals. The in-service idea secures its quality in the organization of teacher effort toward a common goal.59

Curriculum work, which requires the integration of many competencies not usually found in one person, is the responsibility of all members of the professional staff.

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Individual needs, group needs, and institutional needs should be viewed as integral parts of the whole picture of curriculum improvement through in-service education. Passow summarizes the general characteristics of the organization and procedure for curriculum as follows:

... (a) widest possible participation in planning, testing, and evaluating by all persons—professional and lay—who are affected by policy and action decisions; (b) assignment of the individual school to a more central role in curriculum activity; (c) use of groups for initiating, planning, executing, and coordinating improvement efforts; (d) fusion of supervision, in-service education, and curriculum activity to concentrate personnel and processes for the improvement of instruction; (e) experimentation with procedures and devices for more effective involvement; (f) extension of kinds and uses of consultative services from many sources—central office, state department, universities, and colleges, for example; (g) use of cooperative research in field situations for improving practices; (h) teamwork from many levels in cooperative enterprise; and (i) development of more effective and widespread leadership.60

An outstanding characteristic of the national curriculum reform movement has been the attention given to the in-service education of teachers involved in curriculum change. While many of the new courses with accompanying instructional materials have been developed for the high schools, several subjects in elementary schools also have undergone substantial change. On both levels, provisions for new dimensions in in-service teacher education have been developed.

The reform in mathematics began in 1951 with the University of Illinois Committee on School Mathematics. Goodlad, reporting on this program, gives evidence of provision for in-service education:

The sequence of units and accompanying pedagogy virtually necessitate the special training of teachers. Until 1958, textbooks were available only to teachers who had received special training in their use and who were willing to assist in their evaluation. Even today, teachers planning to use the materials, are urged to consult colleagues who have had such special training and to seek it for themselves. Both summer institutes and pedagogical films are available for this purpose.61

The materials of the School Mathematics Study Group are the best known and most widely used of all the new mathematics programs. Their supplementary publications and extensive teacher commentaries provide excellent sources for in-service education.62

The University of Maryland Mathematics Project which originated in 1957 includes in-service courses for elementary teachers and psychological studies of learning in mathematics.63


The current curriculum projects in the sciences at both the elementary and secondary levels have carried on teacher training activities to orient teachers to new content and methods of the curriculum material developed in each project. The Physical Science Study Committee has acted as a pioneer in many areas of the curriculum reform movement and comments on its in-service activities thus:

An essential concern of the Physical Science Committee was the special preparation of teachers who were to use the new course...In the first three years of the project more than 1300 teachers attended special summer institutes at various colleges and universities to prepare themselves for teaching the new course. The institutes were supported by National Science Foundation grants made directly to the educational institutions concerned. Stipends for teachers who attended were included.64

During the developmental phases of the Biological Science Curriculum Study, teachers using its material were required to obtain special preparation through various types of in-service education activities.65

The National Science Teachers Association has proposed The Science Curriculum: K-12 Approach which is useful in setting basic policy, planning in-service education programs for teachers and defining goals of science education.66

Johnson states that the development of national curricula and institute programs have given teachers in these fields a sense of importance. He also makes the point that the great changes that have taken place in the content of science and mathematics have made it extremely difficult for school districts to provide leadership in these areas from within their own staffs. 67

One of the guiding principles that Fraser recommends for making wise, effective use of proposed curriculum plans and materials is that opportunities for advanced study should be provided for teachers to facilitate their development of courses that utilize new approaches and new content. She adds:

> Advanced study by teachers in specially designed summer institutes or in-service courses should therefore precede or accompany the introduction of new curriculum plans in the schools. Both academic content and instructional methods should be treated in the advanced study in which teachers engage. 68

Wide participation in curriculum work has raised the issue of the best ways of working to assure cohesion and productivity. Consequently, a good deal of attention has been devoted to the elaboration of the group processes


68 Fraser, op. cit., p. 92.
necessary to develop both democratic participation and productivity, to the definition of the role of leadership, to the methods of establishing communication and evolution, and of developing consensus out of a multitude of positions and beliefs. Parker advocates group decisions as a means of helping individuals achieve behavior change.  

A Review of Research Related to In-Service Education

Clements, in an early study, discussed generally the in-service education of teachers in terms of salary advances, teachers' institutes, professional reading, summer normals, extension work, school visitations, freedom of teachers, and other topics. He advocated the merit plan of salary promotion as a method of improving teachers in service.

Betts' study dealt with the teacher's interpretation of the problems or difficulties most frequently met or found most troublesome in the public classrooms. He stressed the importance of the teacher's becoming a classroom diagnostician who has the right to be heard and held


that a teacher's perception is quickened by viewing classroom problems at first hand. Betts did admit that proximity to the situation, at times, might cause the teacher to lack perspective in interpreting classroom problems.\textsuperscript{71}

Wenger's thesis dealt with practices in teachers' meetings as well as attitudes and preferences of teachers in regard to teachers' meetings in city and exempted village high schools in Ohio. 170 teachers in these schools showed by their answers to a questionnaire that monthly meetings were their preference. They also indicated that Monday, Tuesday and Wednesday were the days on which teachers preferred meetings and that teachers favored well-planned, regular meetings of definite length with as few announcements and routine matters as possible. The thesis closed with the following recommendations:

1. General meetings are necessary in all schools.
2. Meetings should be held monthly for sixty minutes after school with a minimum of time devoted to administrative routine.
3. Progressive teachers should be asked to cooperate in determining objectives for meetings.
4. All teachers should be given a voice in selection of topics.

\textsuperscript{71}George H. Betts, "Teachers' Diagnosis of Classroom Difficulties," \textit{The Elementary School Journal}, XXVII (April, 1927), p. 600.
5. Mimeographed materials, including references and a few thought provoking questions on topics, should be handed teachers one week before each meeting.\textsuperscript{72}

Wright conducted a study of school systems and industries in Ohio, West Virginia, and Virginia in order to investigate incentives and motivation. His findings led him to advocate faculty meetings, visitation, and self-rating as good devices for in-service training.\textsuperscript{73}

Myers attacked the problem of in-service training through the use of the teacher's handbook, classroom visitation followed by individual teacher-principal conferences, and regular well-planned-in-advance teachers' meetings. The teacher's handbook proved to be very useful to both teachers and principals; classroom visitations were considered the least important. Teacher's meetings furnished a most potent kind of in-service training, especially as sources of new school policies and practices.\textsuperscript{74}

\begin{footnotes}{\footnotesize
\textsuperscript{72}Paul Geiger Wenger, "The Status of Teachers' Meetings in City and Exempted Village Senior and Junior High Schools in Ohio," unpublished Master's thesis Ohio State University, 1930, p. 120.

\textsuperscript{73}Albert E. Wright, "The Use of Incentives in Managing and Supervising the Teacher Personnel," unpublished Master's thesis, Ohio State University, 1932.

\textsuperscript{74}G. E. Myers, "The Improvement of Teachers In Service at Defiance High School," unpublished Master's thesis, Ohio State University, 1936.
\end{footnotes}
Haley's study presented literature descriptive of agencies or efforts through which teachers in-service were readjusting to new values in education. He concludes that the possession of an organismic philosophy of life prompted the teacher to readjust to new values in education, and that the absence of such philosophy, or failure to fully understand its practical application, is largely responsible for many of the erroneous conceptions concerning the new viewpoints in education. 75

The National Emergency Conference on Teacher Preparation and Supply held by the National Commission on Teacher Education and Professional Standards of the National Education Association met at Lake Chautauqua on June 28 and 29, 1946. Three hundred professional and lay leaders from all sections of the United States participated in the conference. The various phases of teacher education were analyzed and recommendations for action, specific and workable, were formulated. The Committee on In-Service Education for teachers described the nature and organization of in-service education for improving teaching, for holding teachers in school work, and for attracting new candidates to the profession.

The ten crucial issues discussed were (1) the direction which in-service education should take; (2) the approach to in-service education; (3) the climate surrounding in-service education; (4) recognition for teachers who grow professionally; (5) conditions that motivate teachers to growth in service; (6) the professional personnel to be served by in-service education; (7) the role and nature of the leadership in the program of in-service education; (8) the interrelated roles of national, state, and local agencies in a program of in-service education, national in scope but local in influence; (9) the special conditions that need immediate and through attention in planning in-service education; and (10) an effective program of public relations. Recommendations for action for the school administrator and the individual teacher were included in the report.76

In 1947, Hazen studied the range of in-service activities in a group of school communities in order to formulate a desirable pattern for local teacher associations to provide professional growth for their members. He recommended:

...that each local association should study its needs and its resources, so that the association

can assist and encourage its members in developing an adequate program of in-service growth. Such a program should emerge from the common interest, involve teaching and administrative staff members upon a common level of participation, and provide for non-directive leadership.

It is further recommended that any organized in-service education program be developed only with adequate assurance of common understanding of needs and be implemented only by techniques and procedures which the group tentatively accepts as desirable and as productive methods of meeting those needs.77

Henderson's dissertation was an attempt to evaluate the workshop program conducted by the Ohio State Department of Education, which included twenty-six workshops. Its effectiveness as a technique for contributing to the personal and professional growth of Ohio teachers in-service was studied. The findings of this research showed that the negative reactions of both consultants and teachers participating in the workshops and the weaknesses identified in the program resulted from the violation of the basic psychological principle involving the necessity for individuals to be provided with the opportunities to share in planning those experiences which are to be theirs.

77Kenneth Melvin Hazen, "A Study of In-Service Activities of Local Teachers' Associations in Ohio, unpublished Master's thesis, Ohio State University, 1947, p. 60."
It was concluded that only in cooperative planning among those concerned with the educational program would the in-service needs of teachers be revealed.78

The Commission on Teacher Education, established by the American Council on Education in 1938 to study the education of teachers, included in its task the consideration of teacher education in-service. During the twenties and thirties, some school systems had begun to develop programs of teacher education which went far beyond the pre-service preparation. The Commission sought to explore these efforts and to build upon them in significant and understandable ways.

The increasing demands made upon the instructional staff by social change was the second consideration of the Commission. Prall and Cushman expressed this concern:

...it came to see very clearly that the continuous education of teachers means much more than making up defects in preparation. It means continuous growth in the capacity to teach. It means broadened understanding of human development and human living. And now, more than at any previous period in school history, it means growth in one's capacity to work with others, with classroom teachers and principals in a variety of activities, with the administration,

with parents and community leaders, and with children of different age groups.\textsuperscript{79}

The Commission used school systems representing a wide sampling in size, operational conditions, and geographical distribution. Instead of trying to develop outcomes of a common program, each school system was encouraged "to work out its own plans and practices, to follow its own convictions, and to proceed in the light of its own needs and resources."\textsuperscript{80}

The Commission summarized its findings thus:

We believe that the experience with the schools in the cooperative study have demonstrated that, given proper conditions, teachers will readily join together in an effort to do better what they conceive to be their jobs; that when people go to work on jobs that to them seem important, personal growth and program improvement become closely related; and that given proper conditions, the teachers' conceptions of their jobs will broaden and also come to relate more closely to the needs of contemporary society.\textsuperscript{81}

Emans reported on a study carried out in Western Dane County (Wisconsin) by a Cooperative Curriculum Study Program in an attempt to measure the changes in 118 elementary teachers' educational attitudes and practices, and he reached these conclusions:

1. Cooperative Curriculum Study Programs as described in this report are effective methods of in-service education of teachers.


\textsuperscript{80}Ibid. p. 439 \hspace{1cm} \textsuperscript{81}Ibid. p. 442
2. Teachers' attitudes toward educational matters can be significantly changed through participating in the "give and take" type of group curriculum study as described in this article.

3. Although day-by-day practices of teachers in the classroom can be expected to change to a limited extent, it appears inevitable that they lag behind the changes in the teachers' attitudes and opinions.

4. Although the data as reported in this article indicated that both the educational attitudes and practices changed, the data concerning the changes in attitude are more statistically significant than the data concerning practices.

5. Even though teachers and supervisors may be in substantial agreement on points of educational philosophy, they are at variance on what constitutes desirable educational practices.82

Perkins conducted a research study investigating the effects of differences in climate and curriculum on group learning of teacher-groups participating in an established in-service program in child study. Six groups of in-service teachers in school systems close to the University of Maryland comprised the sample used in this study. The findings clearly indicated that differences in social-emotional climate did result in significant differences in group learning and group interaction. Climate, as measured by Whitall's technique for categorizing leader state-

ments, is a fairly stable quality of group process and is a factor accounting for differences among groups. 83

Anderson studied a three-year cooperative staff-study program in the LaGrange, Illinois Public Schools in collaboration with the University of Chicago. The program which became known as the LaGrange Cooperative Study was composed of a variety of experiences, among the most important of which, were the activities of child-study groups and multiple activities centering about the social studies in the curriculum. The data pointed up three generalizations:

The first is that in-service improvement of teachers is a long-range process which is not appreciably accelerated at the onset by a program such as the LaGrange Cooperative Study... Secondly, progress may become progressively faster as the program moves from earlier to advanced stages of activity. A third indication is that practical applications such as changes in actual methods of classroom work may come about somewhat more easily than verbalization—such as responses about methods. 84

In his study, Coon investigated the teachers' and administrators' attitudes toward curriculum change to determine the effects of such factors as age, sex, degree of education, and grade level taught. The study was limited


to high school teachers and administrators in the public high schools in Columbus, Ohio. The teachers indicated that they, themselves, would be most likely to resist significant curriculum change. They believed strongly that curriculum revision work should be planned and directed primarily by people working in the local system. 85

Coffman attempted to answer three questions: (1) Do teachers' responses indicate that groups of items are related? (2) Can a study of the relationships among items lead to increased understanding of teacher morale and of its relationship to curriculum development? (3) Can the items be grouped into scales which will provide a satisfactory group measure of morale in a school or a school system? The study included responses from 800 teachers from different school systems. Among the general conclusions were these two:

1. The components of morale which involve human relations are relatively more important than others in relation to the success of cooperative programs of curriculum improvement. The principal of the school is the key person in the development of human relations.

2. In a particular situation, or for a particular person, any one of the components of morale may be crucial. Persons who wish to

---

develop the high morale required for successful curriculum improvement cannot ignore any of them just because, in general, human relations appear to be the most important factor in most situations.  

Hodgson's study dealt with the perception of 379 white teachers in DeKalb County, Georgia, toward certain in-service education activities in which they were engaged and concluded:

1. Teachers preferred to do in-service work at the same grade level in subject fields in which they teach.

2. Teachers preferred to work in their own schools.

3. Teachers valued in-service study on a college or university campus.

4. Teachers saw child study and observing other teachers as effective means of improving classroom practice.

5. Teachers favored vacation travel as a way of improving personal-social relationships.

6. Supervisory activities were regarded as having limited value for meeting the needs of these teachers.

7. Experiences with student teachers have not been professionally rewarding.

8. Teachers saw little instructional value in attending large association meetings.

9. Faculty meetings were not yielding rewards in terms of instructional improvement.

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10. Assumption of the leadership role by teachers was not regarded by them as contributing to instructional improvement.\textsuperscript{87}

McCreary reported, in 1960, that school superintendents and academic personnel in colleges attempted to determine the individual needs of elementary teachers at time of graduation in order that an in-service individualized orientation program could be planned. An interview and a diagnostic check list were used to ascertain the candidates' strengths and weaknesses. The approach holds promise for planning in-service programs.\textsuperscript{88}

Taylor conducted a questionnaire, follow-up study at San Francisco State College among 218 secondary school teachers. The group was asked to identify problems most frequently encountered in teaching. Classroom control and motivation were identified as the principal problems that these teachers were facing.

The group was polled also with respect to the areas in which they needed additional training in order to increase their efficiency. Subject matter was an overwhelming first. In rating the techniques which the school


systems were using to promote growth in teacher competency, the teachers rated courses for salary increments first.\textsuperscript{89}

In a study of the personality characteristics of teachers who were resistant to change, Myers and Torrance identified the following traits. Collectively they were authoritarian, defensive, dominated by time, insensitive to their pupils' intellectual and emotional needs, lacking in energy, preoccupied with their information-giving functions, intellectually inert, disinterested in promoting initiative and self-reliance in their pupils, preoccupied with disciplinary matters, and unwilling to give much of themselves in the teaching-learning compact.\textsuperscript{90}

Shumsky and Mukerji in 1962, studied the role of the consultant in bringing about changed behavior in action research projects and concluded that (a) the way the consultant relates himself to the teacher-researcher during the implementation phase of the undertaking is highly significant, and (b) the deepening of the teachers' self-understanding is a key factor in changed behavior.

It is important for the consultant to accept the feel-

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\textsuperscript{89}Taylor, \textit{op. cit.}, p. 221.

\textsuperscript{90}R. E. Myers and Paul Torrance, "Can Teachers Encourage Creative Thinking?" \textit{Educational Leadership} XIX (December, 1961), p. 159.
ings of the teacher-researcher, to support him and to re-enforce his efforts to implement action research. 91

Perceptions of changes in key instructional practices held by 804 elementary school and 948 secondary school principals were identified through a questionnaire survey and reported by the National Education Association's Project on Instruction in 1962. To identify some of the forces influencing change, principals rated a list of 14 possible sources of influence. Of these, the respondents indicated that local school officials had exerted the greatest influence. Faculty influence was rated second, and state school officials were third with research studies holding fourth place. Various national studies in academic subjects were a close fifth on the composite list.92

Saltzman's study developed guidelines for an in-service program at the Lakota Local Schools, based on the needs of the teachers in that system. The problems presented by the teachers were mainly of a teacher welfare nature. The writer interpreted this as indicating a need for an organized in-service education program since the teachers did


not seem to be aware of the need for more professional
growth. The administrators of these schools did not per-
ceive the teachers' felt needs, and it was recommended
that the administrators assume more responsibility for a
comprehensive in-service program.\textsuperscript{93}

Dempsey's study involved 400 teachers working in one
school system. These teachers were assigned to grades
kindergarten through twelve. This was an effort to in-
vestigate what these faculty members judged to be barriers
to curriculum change, to determine the relationship be-
tween barriers and the teachers' readiness-to-change, and
to relate both the barriers and the readiness-to-change
variables with the demographic data variables. The find-
ings of this study were:

1. Teachers who were ready to change per-
ceived few total barriers or few external
barriers to change.

2. Younger teachers perceived fewer internal
and fewer external barriers to change
than do older teachers.

3. Male teachers sense fewer internal barriers
to change than do female teachers.

4. Secondary teachers see fewer external bar-
riers to change than do elementary school
teachers.

\textsuperscript{93}Glenn Alan Saltzman, "The Development of Recommended
Guidelines for an In-Service Education Program at Lakota
Local Schools," unpublished Master's thesis, Ohio State
University, 1962.
5. Teachers with masters degrees sense fewer external and internal barriers to change than do teachers without master's degrees.

6. Teachers with little teaching experience are more ready to attempt job-related changes and perceive fewer internal or external barriers to change than those with more teaching experience.

7. Teachers who are not on tenure sense fewer internal or external barriers to curriculum change than do teachers on tenure.94

Conclusions

In analyzing the professional literature, one finds that the concept of in-service education has always been a striking characteristic of the teaching profession. As the school in every age faces the challenge of modifying its program to meet the demands of an ever-changing society, in-service education has undergone many changes in its historical development, but a common thread running throughout its history is that in-service work is a program of continuous education.

For approximately half a century, writings in this field have reflected a growing awareness of the relationship between the development of the staff-in-service and the improvement of the instructional program. This need for improvement is present in every aspect of the schools

and is important for everyone working in the field of education.

The broadened concept of school curriculum which has emerged over the past forty years has gradually led to the idea that individual needs, group needs, and institutional needs should be viewed as integral parts of the whole picture of curriculum improvement through in-service education.

Underlying recent professional material about in-service education are certain generalizations:

1. In-service education is a continually growing dynamic part of the teaching profession.

2. In-service programs distributed over a long period of time generally bring more improvement than those restricted to a specific period.

3. Effective in-service education requires careful planning and active participation in the planning of all those to be involved.

4. Real problems existing in a local school unit should provide the starting point for study and action.

5. In-service education programs require effective leadership which must originate with the superintendent and be shared with all participating in the program in such a way that each will assume his responsibility with confidence, understanding and skill.
CHAPTER III

METHODOLOGY OF THE STUDY

Selection of the Schools

The school system of the Archdiocese of Louisville, Kentucky, covers a large geographical area and includes both urban and rural schools. The new mathematics program has been introduced into all the schools in 1958, and the in-service education program accompanying this curriculum change was designed for all the teachers. However, it was decided that the 42 parochial schools in the city of Louisville and the 28 schools in the surrounding suburban areas would constitute a representative sample. Thus the total number of schools used was 70. The size of the faculties in these schools ranged from 4 members to 28 members with a total staff population of approximately 900 persons. The schools are staffed by lay and religious teachers, and the percentage of lay teachers ranges from 25 per cent to 70 per cent.

Selection of the Research Instrument

In the preliminary planning stages of this study, it was determined that all the principals and teachers in the
70 schools would be used. This population sample was too large to be handled by either the observational or the interview technique. The questionnaire was deemed to be the most appropriate instrument to be used in securing the data essential to this study.

**Development of the Instrument**

In the process of developing the questionnaire to be used in gathering data for this study, the writer made a careful review of the in-service program in mathematics which actually had been used in the Louisville parochial schools from September, 1958 through January, 1965. Only those in-service activities were included in Part II of the questionnaire which accounts for the inclusion of items which may not be used in other school systems as well as the omission of others which may be quite prevalent.

In order to secure the reactions of staff members to the experiences provided by the in-service education program, the questionnaire was devised so that possible answers ranged from one extreme position to another through intermediate steps between these positions. In questions 8 through 18 an arithmetic scale ranging from 1 to 5 was used.

The questionnaire contained four parts. The first part, Questions 1-7, dealt with personal data which enabled the writer to ascertain the perceptions of different
groups according to position, years of experience, formal education and level taught.

The second part of the instrument, Questions 8-12, centered around the evaluation of the actual in-service activities categorized under the headings: (1) workshops and meetings; (2) formal classes; (3) supervisory assistance; (4) direct use of materials; and (5) other activities.

The third part of the questionnaire, Questions 13-17, was concerned with those activities in the light of future in-service programs as well as such items as voluntary participation, recognition of individual differences, official recognition of participation in such activities, and follow-up evaluation studies.

The last part, Questions 18-19, dealt with curriculum change and in-service activities which might accompany these changes.

When the first rough draft of the questionnaire had been completed, it was given to the writer's advisers for their critical review. Their suggestions enabled the writer to improve the structure as well as the wording coverage in the revision.

The revised form was duplicated in preparation for pre-testing and distributed to eighteen individuals for further appraisal. These included teachers, principals and supervisors. The participants in the pretest gave valuable suggestions for some changes in wording which improved the
clarity of some statements. Furthermore, the actual answering of the questionnaire by these people gave evidence that this could be done in about 20 minutes.

The final mimeographed form was four pages long and entitled, "A Study of In-Service Education in the Louisville Parochial Elementary Schools."

Administering the Questionnaire

In January, 1965, a visit was made to the Superintendent of the Archdiocese of Louisville to explain the study and to secure the necessary permission to involve certain people in the school system.

In February, 1965, a second visit was made to the School Board Office to acquaint the six supervisors, each of whom represented a Religious Congregation of Women supplying religious teachers to these schools, with the study. Since the writer had worked as a member of this supervisory group for eight years, and had been involved in the curriculum change in mathematics from 1958 to 1963, she received not only the approval of this group but also sincere encouragement.

At this second visit, a letter was secured from the superintendent (see Appendix II) to the principals of the seventy schools involved.

The questionnaire (see Appendix I), the superintendent's letter, a letter from the writer and a set of direc-
tions for each principal (See Appendix II) were mimeographed. The principal was requested to read the two letters to the assembled faculty, and to distribute the questionnaire to the assembled faculty with a self-addressed envelope to encourage frankness of response.

In his letter, the superintendent specified a return date in order to encourage a prompt reply. Within three weeks 93 per cent of the questionnaires had been returned.

Table I gives a report of the distribution and returns of the instrument.

Table I shows the number of questionnaires received and the number and percent of usable ones returned for each subgroup. Of the 30 non-teaching principals receiving the instrument, 29 or 96 per cent responded. Of the 40 teaching principals, 38 or 96 per cent responded. 382 religious teachers received the questionnaire and 351 or 93 per cent responded. Of the 437 lay teachers to whom the instrument was distributed, 407 or 93 per cent answered. Thus 889 questionnaires were distributed, and 825, or 93 per cent, were tabulated.

There are two reasons for some of the principals and teachers not returning the questionnaires. The first was that some of those new to the archdiocese felt that they had not participated in enough of the in-service activities to evaluate them. The second reason was that there is some departmental teaching in the three upper grades and some of
**TABLE 1**

REPORT OF QUESTIONNAIRE—DISTRIBUTION AND RETURNS IN SEVENTY SCHOOLS

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Questionnaires Received</th>
<th>Questionnaires Returned</th>
<th>Per Cent of Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Teaching Principals</td>
<td>30</td>
<td>29</td>
<td>96</td>
</tr>
<tr>
<td>Teaching Principals</td>
<td>40</td>
<td>38</td>
<td>95</td>
</tr>
<tr>
<td>Religious Teachers</td>
<td>382</td>
<td>351</td>
<td>93</td>
</tr>
<tr>
<td>Lay Teachers</td>
<td>437</td>
<td>407</td>
<td>93</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>889</strong></td>
<td><strong>825</strong></td>
<td><strong>93</strong></td>
</tr>
</tbody>
</table>
the teachers had not been involved in the new mathematics. However, the per cent of returns is higher than that which is ordinarily received in such studies.

**Characteristics of the Sample Used**

Since there were only 12 male teachers in the total group, this information was not used.

Table II shows the age characteristics of the sample used.

**TABLE 2**

AGE CHARACTERISTICS OF SAMPLE

<table>
<thead>
<tr>
<th>Age Level</th>
<th>Lay Teachers</th>
<th>Religious Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td></td>
<td>Observed</td>
<td>Observed</td>
</tr>
<tr>
<td>Under 20 years</td>
<td>11</td>
<td>2.7</td>
</tr>
<tr>
<td>20 - 29 years</td>
<td>241</td>
<td>59.2</td>
</tr>
<tr>
<td>30 - 39 years</td>
<td>56</td>
<td>13.8</td>
</tr>
<tr>
<td>40 - 49 years</td>
<td>47</td>
<td>11.5</td>
</tr>
<tr>
<td>50 years or more</td>
<td>52</td>
<td>12.8</td>
</tr>
</tbody>
</table>

Table 2 shows that while there were 2.7 per cent of lay teachers under the age of 20 years, there were no religious teachers in this category. The majority of the
lay teachers, 59.2 per cent, fell into the 20-29 year-age group while only 25 per cent of the religious teachers were found in this group. Many of the lay teachers leave the profession to rear families; some return, but this explains why only 23 per cent of this group are 40 years or older.

The religious teacher, on the other hand, remains in the teaching profession and seldom leaves for reasons other than those of health. Today, the ratio of lay teachers to religious teachers in this school system is approximately one-to-one. Thus few religious teachers are entering the schools in this system. These two facts account for the large per cent of religious teachers in the 50-or-more-age group.

Table 3 gives the levels of formal education of the teachers.

<table>
<thead>
<tr>
<th>TABLE 3</th>
<th>LEVELS OF FORMAL EDUCATION OF LAY TEACHERS AND RELIGIOUS TEACHERS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lay Teachers</td>
</tr>
<tr>
<td></td>
<td>N = 406</td>
</tr>
<tr>
<td>Levels of Education</td>
<td>Frequency</td>
</tr>
<tr>
<td>Less than a Bachelor's Degree</td>
<td>328</td>
</tr>
<tr>
<td>Bachelor's Degree but less than a Master's Degree</td>
<td>76</td>
</tr>
<tr>
<td>Master's Degree and beyond</td>
<td>2</td>
</tr>
</tbody>
</table>
Since many of the lay teachers are hired when they have completed two years and two summers of college work, a large per cent of them do not have their degrees. Under the Sister Formation Program, which is in effect in the six Religious Congregations involved, all the young Sisters entering the teaching profession now have their degrees.

Table 4 shows the years of experience characteristics of the sample.

TABLE 4
YEARS OF EXPERIENCE CHARACTERISTICS OF SAMPLE

<table>
<thead>
<tr>
<th>Years of Experience</th>
<th>Lay Teachers</th>
<th></th>
<th>Religious Teachers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 407</td>
<td>N = 388</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 years or less</td>
<td>228</td>
<td>56.0</td>
<td>29</td>
<td>7.5</td>
</tr>
<tr>
<td>4-9 years</td>
<td>140</td>
<td>34.4</td>
<td>79</td>
<td>20.4</td>
</tr>
<tr>
<td>10-14 years</td>
<td>17</td>
<td>4.2</td>
<td>61</td>
<td>15.7</td>
</tr>
<tr>
<td>15-19 years</td>
<td>11</td>
<td>2.7</td>
<td>40</td>
<td>10.3</td>
</tr>
<tr>
<td>20-24 years</td>
<td>3</td>
<td>.7</td>
<td>33</td>
<td>8.5</td>
</tr>
<tr>
<td>25 years or more</td>
<td>8</td>
<td>2.0</td>
<td>146</td>
<td>37.6</td>
</tr>
</tbody>
</table>

90.4 per cent of the lay teachers have 9 years or less experience. This is in agreement with the results shown in Table 2 where 61.9 per cent of these teachers are 29 years
or younger. Only 27.9 per cent of the religious teachers have taught 9 years or less.

Table 5 gives the distribution of lay and religious teachers according to the number of years taught in the Louisville parochial schools from 1958 through 1965.

TABLE 5
YEARS TAUGHT IN LOUISVILLE ARCHDIOCESAN PAROCHIAL SCHOOLS FROM 1958-1965

<table>
<thead>
<tr>
<th>Years Taught</th>
<th>Lay Teachers</th>
<th>Religious Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 407</td>
<td>N = 389</td>
</tr>
<tr>
<td></td>
<td>Frequency Observed</td>
<td>Percentage Observed</td>
</tr>
<tr>
<td>1 year</td>
<td>85</td>
<td>20.9</td>
</tr>
<tr>
<td>2 years</td>
<td>104</td>
<td>25.5</td>
</tr>
<tr>
<td>3 years</td>
<td>49</td>
<td>12.0</td>
</tr>
<tr>
<td>4 years</td>
<td>42</td>
<td>10.3</td>
</tr>
<tr>
<td>5 years</td>
<td>34</td>
<td>8.4</td>
</tr>
<tr>
<td>6 years</td>
<td>30</td>
<td>7.4</td>
</tr>
<tr>
<td>7 years</td>
<td>63</td>
<td>15.5</td>
</tr>
</tbody>
</table>

From this table, one can see that the turnover of lay teachers is much greater than that of the religious teachers.

Table 6 gives the distribution of lay and religious teachers according to the grade level—primary, intermediate, or upper—taught.
TABLE 6
DISTRIBUTION OF LAY AND RELIGIOUS TEACHERS
ACCORDING TO GRADE TAUGHT
IN SEVENTY SCHOOLS

<table>
<thead>
<tr>
<th>Grades Taught</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary 1-3</td>
<td>197</td>
<td>48.4%</td>
<td>146</td>
<td>37.6%</td>
</tr>
<tr>
<td>Intermediate 4-6</td>
<td>175</td>
<td>43.0%</td>
<td>97</td>
<td>25.0%</td>
</tr>
<tr>
<td>Upper 7-8</td>
<td>35</td>
<td>8.6%</td>
<td>145</td>
<td>37.4%</td>
</tr>
</tbody>
</table>

The greater number of lay teachers is located in grades 1-6 while the religious teachers are distributed normally among the eight grades.

Tabulation and Analysis of Data

When all the questionnaires had been examined, the data were transferred to large data sheets so that the scores could be placed on I.B.M. cards for analysis. The program produced the mean scores and standard deviations which were used in setting up the tables.

In Tables 7 through 22, the t-test was used to determine whether the differences between the means were real or merely chance variations. The t-test assumes a normally-distributed population and interval data. The first assumption is met because a large sample in proportion to
The total population was tested. Interval data is in evidence in the 1-5 rating of the responses to the questionnaire.

The formula for the t-test is:

\[
t = \frac{M_1 - M_2}{\sqrt{\frac{St. Dev. _1^2}{N_1 - 1} + \frac{St. Dev. _2^2}{N_2 - 1}}} \text{, } df = N_1 - N_2 - 2
\]

Where

\[M_1 = \text{the mean of the first subgroup}\]
\[M_2 = \text{the mean of the second subgroup}\]
\[\text{St. Dev.}_1 = \text{the standard error of the first mean}
\]
\[\frac{\text{St. Dev.}}{N_1 - 1} = \text{the standard error of the first mean}\]
\[\frac{\text{St. Dev.}}{N_2 - 1} = \text{the standard error of the second subgroup}\]

The size of the degrees of freedom (df) reflects the number of observations that are free to vary after certain restrictions have been placed on the data. In computing
the mean, one degree has been used up, leaving \( N - 1 \) as the degrees of freedom for each subgroup.

In Tables 23 through 46, only the mean scores were used.
CHAPTER IV

INTERPRETATION OF DATA

Material Relating to Lay Teachers and Religious Teachers

A twofold purpose of this study was to discover and compare the reactions of lay and religious teachers to the in-service education program which had been carried on for seven years in the Louisville parochial elementary schools. This in-service program had accompanied the major curriculum change in mathematics in grades one through eight from September, 1958 through June, 1965. The questionnaire used for this purpose consisted of four parts: (1) personal data; (2) in-service activities; (3) future in-service education; (4) curriculum change.

Questions one through seven dealt with personal data, such as position, sex, age, teaching experience, formal education and grade level taught. Questions 8 through 18 pertained to the other three parts and were devised so that possible answers ranged from one extreme position to another through an arithmetic scale from 1 to 5. Question 19 was an open-ended one concerned with curriculum change.

Question 8 investigated the teachers' reactions to
workshops and meetings and included the following items: (a) in-service workshops (2-5 days); (b) periodic meetings for groups of teachers according to grade(s) taught (primary, intermediate, upper); (c) professional talks at faculty meetings; (d) talks at system-side teachers' meetings; and (e) meetings and conferences sponsored by professional organizations.

Table 7 shows the mean of the responses of lay teachers to in-service workshops to be 3.1 while the mean of the religious teachers' responses was 2.8. By using the t test the difference in these responses was found to be significant to the .001 level.

These workshops were always held for a combined group of lay and religious teachers. Since the level of formal education of lay teachers is below that of the religious teachers (Table 3), the material covered in these workshops may have been partially ineffective because of the difference in the professional preparation of these two groups of teachers. The difference in the years of experience of the two groups (Table 4) may be another reason for the lack of importance of these workshops and meetings for the religious teachers. This stresses the need of taking into account the individual differences of the teachers when planning in-service education activities.

The second item under Question 8 dealt with periodic meetings for groups of teachers according to grade taught
<table>
<thead>
<tr>
<th>Items</th>
<th>Lay Teachers</th>
<th>Std. Deviation</th>
<th>Religious Teachers</th>
<th>Std. Deviation</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. In-service workshops (2-5 days)</td>
<td>3.182</td>
<td>1.074</td>
<td>2.838</td>
<td>1.250</td>
<td>.001</td>
</tr>
<tr>
<td>b. Periodic meetings for groups of teachers according to grade(s) taught (primary, intermediate, upper)</td>
<td>3.297</td>
<td>1.030</td>
<td>3.168</td>
<td>1.169</td>
<td>N.S.</td>
</tr>
<tr>
<td>c. Professional talks at faculty meetings</td>
<td>2.857</td>
<td>1.137</td>
<td>2.877</td>
<td>1.260</td>
<td>N.S.</td>
</tr>
<tr>
<td>d. Talks at system-wide teachers' meetings</td>
<td>2.953</td>
<td>1.114</td>
<td>3.088</td>
<td>1.221</td>
<td>N.S.</td>
</tr>
<tr>
<td>e. Meetings and conferences sponsored by professional organizations</td>
<td>2.767</td>
<td>1.037</td>
<td>3.017</td>
<td>1.034</td>
<td>.01</td>
</tr>
</tbody>
</table>
(primary, intermediate, upper). The mean for the lay teachers for this item was 3.2 and that of the religious teachers was 3.1. There was no significant difference in the responses of the two groups on this phase of the in-service program. This may be interpreted as being an area in which the needs of the teachers have been met to an encouraging degree and future planning should include a careful study of ways to further improve these meetings.

The third point in Table 1, professional talks at faculty meetings, was rated a 2.8 mean by both groups; therefore, there was no significant difference in their responses. One reason for the low rating may be found in the responses to the open question at the end of the questionnaire where many teachers from both groups referred to these speakers as largely representatives of publishing companies who were trying to sell their publications. Often, they were not aware of the particular problems of the school system or the individual school.

The fourth topic, talks at system-wide teachers' meetings, received a 2.9 mean by the lay teachers and a 3.0 mean by the religious teachers. There were no significant difference in the responses of the two groups. While these meetings have not been totally ineffective, the reason for their not receiving a higher rating may be traced to the same reason used to explain the responses to the third item. The majority of these speakers at large meet-
ings have likewise been members of publishing companies rather than professional educators. Greater efforts should be made to secure outstanding professional people from the educational profession.

**Selected comment of a lay teacher**

"Unless the publishing companies can begin sending teachers to conduct their workshops, most teachers would prefer to use their precious time in some more fruitful way."

**Selected comment of a religious teacher**

"Meetings and workshops would be beneficial and profitable if speakers were not only interested in their subject but also learned so that they could enlighten their audiences. Salesmen from publishing companies speak on a subject pertaining to their products but often they are not prepared sufficiently to be able to discuss the topic intelligently."

The last item in this table, meetings and conferences sponsored by professional organizations, received a 2.7 mean by the lay teachers and a 3.0 by religious teachers. The difference in the responses was significant to the .01 level. This difference can be explained by the fact that the turnover of lay teachers is so much greater than that of religious teachers as shown in Table 4.

There is also a trend in this school system to send
religious teachers to meetings held by professional organizations in much larger numbers than lay teachers. The low salaries would be a deterrent to lay teachers' belonging to professional organizations and attending meetings at a distance.

Question 9 dealt with formal classes, and these were divided into college courses in the teaching of the new mathematics and a series of classes covering the subject matter of one grade. Table 8 shows the results of this inquiry.

College courses received a high rating, a mean of 4.1 by the lay teachers and a 3.8 mean by religious teachers. The difference in their responses was found to be significant to the .001 level. Both groups found the college courses helpful, but the higher rating by the lay teachers is probably due to the fact that the lay teachers are not as prepared professionally as the religious teachers, (see Table 3). This response indicates the awareness of the need for further preparation on the part of the lay teachers. It also indicates that courses dealing with modern mathematics at a higher level would be an acceptable and advantageous activity in future in-service education programs.

The second item in Table 8, a series of classes covering subject matter of one grade, had a 3.8 mean for the lay teachers and a 3.6 mean for the religious teachers. The difference was significant to the .05 level. This compara-
<table>
<thead>
<tr>
<th>Items</th>
<th>Lay Teachers</th>
<th>Religious Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standard Mean Standard Mean Level of</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Deviation</td>
<td>Deviation</td>
</tr>
<tr>
<td>a. College courses in the teaching of the new mathematics</td>
<td>4.189 1.226</td>
<td>3.852 1.367</td>
</tr>
<tr>
<td>b. Series of classes covering subject matter of one grade</td>
<td>3.840 1.125</td>
<td>3.664 1.344</td>
</tr>
</tbody>
</table>
tively high rating by both groups of teachers can be explained by taking into consideration the high turnover of teachers from both groups as shown in Table 4. It is also indicative of a tendency to consider subject matter as an end in itself rather than as a means of teaching the underlying principles of a particular area of knowledge.

Question 10 dealt with supervisory assistance and was divided into: (a) classroom observation by supervisor followed by individual conferences; (b) demonstration classes; (c) visits to other teachers' classes.

For the first item in Table 9, classroom observation followed by individual conference the mean of the lay teachers' responses was 3.4 while that of the religious teachers' responses was 3.1. The mean of the second item, demonstration classes, for the lay teachers was 3.9 and that for the religious teachers was 3.2. The third item, visits to other teachers' classes, was rated a 3.5 mean by lay teachers, and a 3.1 by religious teachers. The difference in each of these sets of scores was significant to the .001 level. These differences can be partially explained by the dissimilarity in the level of formal education of the two groups (see Table 3) and in the years of experience (see Table 4).

Neither group rated the supervisory assistance as very important or extremely important. This indicates that the type of supervisory activity used in this school system may
TABLE 9

MEAN SCORES, STANDARD DEVIATIONS, LEVELS OF SIGNIFICANCE OF SUPERVISORY ASSISTANCE FOR LAY AND RELIGIOUS TEACHERS

<table>
<thead>
<tr>
<th>Items</th>
<th>Lay Teachers</th>
<th></th>
<th>Religious Teachers</th>
<th></th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 407</td>
<td></td>
<td>N = 351</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Classroom observation by supervisor followed by individual conference</td>
<td>3.486</td>
<td>1.221</td>
<td>3.128</td>
<td>1.340</td>
<td>.001</td>
</tr>
<tr>
<td>b. Demonstration classes</td>
<td>3.939</td>
<td>1.028</td>
<td>3.276</td>
<td>1.373</td>
<td>.001</td>
</tr>
<tr>
<td>c. Visits to other teachers' classrooms</td>
<td>3.595</td>
<td>1.209</td>
<td>3.145</td>
<td>1.467</td>
<td>.001</td>
</tr>
</tbody>
</table>
need to be directed more extensively to the needs of the individual teacher or to helping the teacher recognize his needs. The supervisors may need to stress the advantages to be secured from such practices as demonstration classes and visitations to other teachers' classes.

It would be worthwhile to investigate the opportunities these teachers have to engage in these two activities. Lack of experience may be the reason for the comparatively low rating of these items.

Question 11 dealt with the direct use of materials and was divided into (a) actual use of textbooks, teachers' manuals and workbooks; (b) shared samples of teacher-prepared materials to supplement textbook material; (c) standardized tests provided by publishing company; (d) tests administered through School Board Office; (e) films prepared by authors of the mathematics program.

Table 10 gives the results of the teachers' responses to this question.

The first item, actual use of textbooks, teachers' manuals and workbooks received a mean score of 4.4 by both the lay and religious teachers.

One reason for the high rating may be that these materials are quite different from the materials found in the traditional mathematics series for elementary grades. Both the terminology and the teaching method used varied a great deal from those which the teachers had experienced in their
<table>
<thead>
<tr>
<th>Items</th>
<th>Lay Teachers</th>
<th></th>
<th>Religious Teachers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td></td>
<td>Lay Teachers</td>
<td></td>
<td>Religious Teachers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N = 407</td>
<td></td>
<td>N = 351</td>
<td></td>
</tr>
<tr>
<td>a. Actual use of text-books, teachers' manuals and workbooks</td>
<td>4.479</td>
<td>0.832</td>
<td>4.467</td>
<td>0.833</td>
</tr>
<tr>
<td>b. Shared samples of teacher-prepared materials to supplement textbook material</td>
<td>3.592</td>
<td>1.087</td>
<td>3.396</td>
<td>1.322</td>
</tr>
<tr>
<td>c. Standardized tests provided by publishing company</td>
<td>3.130</td>
<td>1.118</td>
<td>3.000</td>
<td>1.282</td>
</tr>
<tr>
<td>d. Tests administered through School Board Office</td>
<td>3.027</td>
<td>1.183</td>
<td>2.613</td>
<td>1.160</td>
</tr>
<tr>
<td>e. Films prepared by authors of the mathematics program</td>
<td>3.120</td>
<td>1.204</td>
<td>2.738</td>
<td>1.304</td>
</tr>
</tbody>
</table>
own school years. By actual use of the materials, the teachers probably secured a sense of mastery of content which they felt was necessary to succeed in this area.

This rating could mean, however, that the principles underlying the new mathematics were not understood by the teachers to the extent that they could select content on their own.

The second item, shared samples of teacher-prepared materials to supplement textbook material, was rated a 3.5 mean by lay teachers and a 3.3 mean by religious teachers. The difference was significant to the .02 level.

In response to the open-ended question the teachers gave evidence of having gained help from other teachers.

**Selected comment of a lay teacher**

"One of the most advantageous experiences is for teachers of the same grade to get together and discuss the new mathematics in the elementary schools. I have gotten many excellent 'seat work ideas' this way."

**Selected comment of a religious teacher**

"I feel that much can be gained from association with others who are actually meeting the same every day problems as I am. There is some security in finding that others are having the same problems as I am and in discussing the various techniques used to combat these difficulties."

The third item, standardized tests provided by the
publishing company, was rated a 3.1 mean by lay teachers and a 3.0 by religious teachers. No significant difference was found between these mean scores.

The tests provided by the publishing company were for grades 3-8 so the comparison of the response of these two subgroups is not revealing. This item is handled more realistically when the responses of the primary teachers and upper grade teachers are analyzed.

The item, tests administered through the School Board, was rated a 3.0 median by lay teachers and a mean of 2.6 by religious teachers. The difference in the scores was significant at the .001 level.

Since these tests were constructed by a committee under the auspices of the School Board and were not standardized, the low rating accorded them by the religious teachers is easily understood.

The last item in this table, films prepared by authors of the mathematics program were rated a 3.2 mean by lay teachers and a 2.7 by religious teachers. The difference between the two means was significant at the .001 level.

It is not clear why the religious teachers valued these films to be of little importance. While the lay teachers rated them a little higher, the caliber of these films would seem to merit a more favorable evaluation. An investigation should be made to discover how, when, and
where the films were used and what briefing was provided for those viewing these films.

Table 11 shows how the teachers responded to other activities; namely, professional reading, discussion with other teachers, and conducting classes in modern mathematics for interested students outside of school time.

The first item, professional reading, was rated a 3.5 median by lay teachers and a 4.0 by religious teachers. The difference in the two scores was significant at the .001 level.

Since the religious teachers remain in the profession much longer than the lay teachers as a whole, (see Table 4) they are, no doubt, more familiar with professional literature. Also, the professional books and magazines are kept in the school or convent where the religious teachers live as well as teach and are much more available to them than to the lay teachers. Perhaps an effort to increase the availability of professional literature for the lay teacher would be productive in encouraging results in this matter.

The second item, discussion with other teachers, received a 3.8 mean by both groups. Comments of the teachers themselves explain this score.

Selected comment of a lay teacher

"Why can't the Sisters and lay teachers in different areas meet for discussions regularly? Small group discus-
TABLE 11

MEAN SCORES, STANDARD DEVIATIONS, LEVELS OF SIGNIFICANCE OF OTHER ACTIVITIES FOR LAY AND RELIGIOUS TEACHERS

<table>
<thead>
<tr>
<th>Items</th>
<th>Lay Teachers</th>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Professional Reading</td>
<td>3.523</td>
<td>1.098</td>
<td>4.028</td>
<td>1.010</td>
<td>.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Discussion with other teachers</td>
<td>3.897</td>
<td>0.935</td>
<td>3.840</td>
<td>1.081</td>
<td>N.S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Conducting classes in modern mathematics for interested students outside of school time</td>
<td>3.086</td>
<td>1.243</td>
<td>2.761</td>
<td>1.368</td>
<td>.001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
sion seems to be an effective means of actually getting problems solved, when solutions are possible."

**Selected comment of a religious teacher**

"Teachers need to discuss among themselves and share ideas. Teachers in different areas have much to offer each other and should meet at intervals and divide up according to the grade taught. This sharing is essential to education."

The third item, conducting classes in modern mathematics for interested students outside of school time, was rated a 3.0 mean score by lay teachers and a 2.7 mean score by religious teachers, and the difference was significant at the .001 level.

This difference is difficult to explain because the religious teachers engaged in this activity in much larger numbers than did the lay teachers. It would be well to investigate the reasons why the religious teachers did not find the activity more beneficial.

Table 12 gives the reactions of the teachers to the five categories of in-service activities in the light of future in-service education programs.

The mean for the lay teachers was 3.3 and 3.1 for the religious teachers. The difference in the scores was not significant. Both groups felt that workshops and meetings
TABLE 12

MEAN SCORES, STANDARD DEVIATIONS AND LEVELS OF SIGNIFICANCE OF FIVE CATEGORIES OF IN-SERVICE ACTIVITIES IN THE LIGHT OF FUTURE IN-SERVICE EDUCATION PROGRAMS FOR LAY AND RELIGIOUS TEACHERS

<table>
<thead>
<tr>
<th>Item</th>
<th>Lay Teachers Mean</th>
<th>Lay Teachers Standard Deviation</th>
<th>Religious Teachers Mean</th>
<th>Religious Teachers Standard Deviation</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Workshops and Meetings</td>
<td>3.322</td>
<td>1.022</td>
<td>3.199</td>
<td>1.069</td>
<td>N.S.</td>
</tr>
<tr>
<td>b. Formal Classes</td>
<td>3.811</td>
<td>1.067</td>
<td>3.530</td>
<td>1.236</td>
<td>.001</td>
</tr>
<tr>
<td>c. Supervisory Assistance</td>
<td>3.570</td>
<td>1.157</td>
<td>3.171</td>
<td>1.248</td>
<td>.001</td>
</tr>
<tr>
<td>d. Direct Use of Materials</td>
<td>4.140</td>
<td>0.894</td>
<td>3.969</td>
<td>1.186</td>
<td>.02</td>
</tr>
<tr>
<td>e. Other Activities</td>
<td>3.509</td>
<td>1.011</td>
<td>3.450</td>
<td>1.189</td>
<td>N.S.</td>
</tr>
</tbody>
</table>
were of some importance and the following comments show how they think they can be improved.

**Selected comment of a lay teacher**

"I think there should be teachers' meetings where teachers themselves are enabled to express their views on the present curriculum. I firmly believe that we, the teachers, should have some place to express our ideas. The fall teachers' meetings are absolutely meaningless. They are one-sided. Teachers should be allowed to express their views."

**Selected comment of a lay teacher**

"If workshops were classified according to experience and grade taught, I think they would be more informative. The information usually given is too general."

**Selected comment of a religious teacher.**

"Nearly all the in-service programs in which I have participated have been designed to reach too many people and to cover too much material. As a result, the individual receives little that is practical for him other than a general view of what is being done."

The item, formal classes, had a mean score of 3.8 for lay teachers and 3.5 for religious teachers. The difference was significant to the .001 level. The change in content in the mathematics would explain the rather high rating by both groups.
The difference in the 3.5 mean for lay teachers and the 3.1 mean for religious teachers regarding supervisory assistance was found to be significant at the .001 level. While both groups considered this item to be of some importance, it would seem that, in the light of future programs, this activity should be such that it would be highly beneficial for all teachers.

The next item, direct use of materials, received the highest scores of the items in this table with a 4.1 by lay teachers and a 3.9 by religious teachers. This has been the consistent reaction to this topic in this study, but the question arises as to whether it would be equally valued in other subject matter fields such as language arts and social studies.

There was no significant difference between the medians for the two groups for the last item, other activities. The lay teachers' mean of 3.5 and the religious teachers' mean of 3.4 shows that these activities should be part of future in-service programs.

Table 13 gives the reactions of the teachers to Questions 14, 15, 16, and 17.

It is interesting to note the similarity of the results found in this table for both groups. There was no significant difference found in the means for each of the four items. The mean for voluntary participation for the lay teachers was 3.7 and that of the religious teachers was
### TABLE 13

MEAN SCORES, STANDARD DEVIATIONS AND LEVELS OF SIGNIFICANCE OF VOLUNTARY PARTICIPATION, RECOGNITION OF INDIVIDUAL DIFFERENCES, RECOGNITION BY SCHOOL OFFICIALS AND EVALUATION STUDIES IN THE LIGHT OF FUTURE IN-SERVICE EDUCATION PROGRAMS FOR LAY AND RELIGIOUS TEACHERS

<table>
<thead>
<tr>
<th>Items</th>
<th>Lay Teachers</th>
<th></th>
<th>Religious Teachers</th>
<th></th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
<td>Mean</td>
<td>Standard Deviation</td>
<td></td>
</tr>
<tr>
<td>a. Voluntary Participation</td>
<td>3.749</td>
<td>1.083</td>
<td>3.615</td>
<td>1.257</td>
<td>N.S.</td>
</tr>
<tr>
<td>b. Recognition of Individual Differences</td>
<td>4.064</td>
<td>0.985</td>
<td>4.154</td>
<td>1.084</td>
<td>N.S.</td>
</tr>
<tr>
<td>c. Recognition by School Officials</td>
<td>3.479</td>
<td>1.001</td>
<td>3.427</td>
<td>1.244</td>
<td>N.S.</td>
</tr>
</tbody>
</table>
3.6. There has been no provision for voluntary participation in the in-service program being evaluated in this study. In future programs, provisions should be made for this approach.

Recognition of individual differences received the highest rating of these items with a 4.0 for the lay and a 4.1 for the religious teachers. A comment from a religious teacher seems enlightening here.

*Selected comment of a religious teacher*

"Can there be adequate training for sisters who are new in the diocese? In three years, the turnover of the religious teachers is so great that introductory courses offered in the new mathematics are lost in most schools. Has anyone checked to see what is offered in the years after the introductory courses are offered?"

Recognition by school officials was given the same rating by both the lay and religious teachers—3.4. This is revealing since it has been assumed to a large degree that such recognition was important only to the lay teachers. Ways of fulfilling this need should be inaugurated.

Evaluation studies received a 3.6 mean by the lay and a 3.5 mean by the religious teachers. This is encouraging since this is the first study of this kind undertaken to examine the in-service program in this school system.

Table 14 contains the reactions to curriculum change in seven subject matter areas.
### TABLE 14

**MEAN SCORES, STANDARD DEVIATIONS, LEVELS OF SIGNIFICANCE OF THE IMPORTANCE OF CURRICULUM CHANGES FOR LAY AND RELIGIOUS TEACHERS**

<table>
<thead>
<tr>
<th>Items</th>
<th>Lay Teachers Mean</th>
<th>Lay Teachers Standard Deviation</th>
<th>Religious Teachers Mean</th>
<th>Religious Teachers Standard Deviation</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Language Arts</td>
<td>3.044</td>
<td>1.413</td>
<td>3.009</td>
<td>1.581</td>
<td>.01</td>
</tr>
<tr>
<td>b. Social Studies</td>
<td>3.000</td>
<td>1.389</td>
<td>2.781</td>
<td>1.587</td>
<td>.05</td>
</tr>
<tr>
<td>c. Music</td>
<td>3.302</td>
<td>1.503</td>
<td>3.142</td>
<td>1.644</td>
<td>N.S.</td>
</tr>
<tr>
<td>d. Art</td>
<td>3.184</td>
<td>1.310</td>
<td>3.123</td>
<td>1.513</td>
<td>N.S.</td>
</tr>
<tr>
<td>e. Science</td>
<td>3.420</td>
<td>1.332</td>
<td>3.091</td>
<td>1.577</td>
<td>.01</td>
</tr>
<tr>
<td>f. Religion</td>
<td>3.408</td>
<td>1.423</td>
<td>3.564</td>
<td>1.729</td>
<td>N.S.</td>
</tr>
</tbody>
</table>
The means for the different areas of curriculum are:

- language arts—3.0 for both lay and religious;
- social studies—3.0 for lay and 2.7 for religious;
- music—3.3 for lay and 3.1 for religious;
- art—3.1 for lay and religious;
- science—3.4 for lay and 3.0 for religious;
- religion—3.4 for lay and 3.5 for religious teachers.

Changes in no one area are considered either very important or extremely important by these two groups. This is surprising since the administrative personnel in this school system is aware of the drastic changes which seem to be eminent in the fields of language arts and social studies in the near future.

**Summary**

The hypothesis that there would be no difference in the responses of the lay and religious teachers has not been substantiated. The mean scores in Tables 8 - 12 for one or more items under Questions 1 - 13 were found to be significantly different at the .001 level.

In the responses to Questions 14 - 18, the differences in the mean scores were of less importance, but the findings of this part of the study indicate that, for future in-service education programs to be equally beneficial to both the lay and religious teachers, more careful planning is needed.
Material Relating to Non-teaching and Teaching Principals

Another purpose of this study was to evaluate the reactions of the teaching and non-teaching principals to the in-service education program carried on from 1958 through 1965 and its possibilities for future in-service education. Since 57.1 per cent of the group are teaching and 42.9 are non-teaching, the size of each group is large enough to warrant study.

Table 15 shows the reactions of the principals to Question 8 which deals with workshops and meetings.

The first item, in-service workshops, received a 3.3 mean by the non-teaching principals and a 3.5 mean by teaching principals. While this indicates that the groups feel that these workshops are of some importance, a response by a principal to the last open-ended question expresses a feeling which probably accounts for their not being valued more highly.

Selected comment of a teaching principal

"It is important that grade school teachers take advantage of grants from universities which are centers of specialization. Here they could receive training from specialists and much knowledge, enthusiasm, and initiative could be awakened. I do not feel that a five-day workshop at the end of a heavy school year is of much benefit where one or two specialists talk at us. Let us become aware of
### TABLE 15
MEAN SCORES, STANDARD DEVIATIONS, LEVELS OF SIGNIFICANCE OF WORKSHOPS AND MEETINGS FOR NON-TEACHING PRINCIPALS AND TEACHING PRINCIPALS

<table>
<thead>
<tr>
<th>Items</th>
<th>Non-Teaching Principals</th>
<th>Teaching Principals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>a. In-service workshops (2 - 5 days)</td>
<td>3.345</td>
<td>.813</td>
</tr>
<tr>
<td>b. Periodic meetings for groups of teachers according to grade(s) taught (Primary, intermediate, upper)</td>
<td>3.517</td>
<td>1.213</td>
</tr>
<tr>
<td>c. Professional talks at faculty meetings</td>
<td>2.931</td>
<td>1.066</td>
</tr>
<tr>
<td>d. Talks at system-wide teachers' meetings</td>
<td>2.897</td>
<td>1.046</td>
</tr>
<tr>
<td>e. Meetings and conferences sponsored by professional organizations</td>
<td>2.621</td>
<td>1.177</td>
</tr>
</tbody>
</table>
the centers of learning where the masters and materials are available and it is there that we will be helped and inspired as to which curriculum changes are the best."

Periodic meetings for groups of teachers according to grade(s) taught had a 3.5 mean for non-teaching principals and a 3.4 for teaching principals. The difference between the scores was not significant. This response indicates that these meetings have fulfilled a need to a moderate extent.

The last three items were rated thus: professional talks at faculty meetings--2.9 by non-teaching principals and 3.0 by teaching principals; talks at system-wide teachers' meetings--2.8 by non-teaching principals and 3.2 by teaching principals; meetings and conferences sponsored by professional organizations--2.6 by non-teaching principals and 3.0 by teaching principals. The difference in the first of these three sets of scores was significant at the .02 level and the difference in the last two sets of scores was significant at the .001 level.

It is difficult to understand why the non-teaching principals rated these last three items lower than the teaching principals. It is the principal who would approve professional talks at faculty meetings. Non-teaching principals have more opportunities to attend meetings and conferences sponsored by professional organizations. This is an area that requires investigation.
Table 16 gives the results of the study of formal classes.

The mean for college courses was 4.2 for non-teaching principals and 4.3 for teaching principals. The mean for series of classes covering subject matter of one grade was 4.2 for non-teaching principals and 4.1 for teaching principals. These high ratings are indicative that such inservice activities have been most valuable.

Table 17 shows the mean scores for supervisory assistance.

Classroom observation by supervisor followed by individual conference received a 3.1 mean by non-teaching principals and a 3.0 mean by teaching principals. Demonstration classes received a 3.7 by both groups. Visits to other teachers' classrooms was given a 3.4 mean score by non-teaching principals and a 3.2 mean score by teaching principals. None of the differences between these scores was significant.

There is a striking similarity in the responses of both of these groups regarding supervisory assistance. Demonstration classes had the highest rating among these three items. The responses of the principals to Question 19 included several pertaining to this practice.
<table>
<thead>
<tr>
<th>Items</th>
<th>Non-Teaching Principals</th>
<th>Teaching Principals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standard Mean</td>
<td>Standard Mean</td>
</tr>
<tr>
<td></td>
<td>Deviation</td>
<td>Deviation</td>
</tr>
<tr>
<td>a. College courses in the teaching of the new mathematics</td>
<td>4.241</td>
<td>.872</td>
</tr>
<tr>
<td>b. Series of classes covering subject matter of one grade</td>
<td>4.276</td>
<td>.701</td>
</tr>
</tbody>
</table>
### TABLE 17

**MEAN SCORES, STANDARD DEVIATIONS, LEVELS OF SIGNIFICANCE OF SUPERVISORY ASSISTANCE FOR NON-TEACHING PRINCIPALS AND TEACHING PRINCIPALS**

<table>
<thead>
<tr>
<th>Items</th>
<th>Non-Teaching Principals</th>
<th>Teaching Principals</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 29</td>
<td>N = 38</td>
<td></td>
</tr>
<tr>
<td>a. Classroom observation by supervisor followed by individual conference</td>
<td>3.172 1.197</td>
<td>3.079 1.260</td>
</tr>
<tr>
<td>b. Demonstration classes</td>
<td>3.724 1.065</td>
<td>3.711 1.112</td>
</tr>
<tr>
<td>c. Visits to other teachers' classrooms</td>
<td>3.414 1.476</td>
<td>3.289 1.292</td>
</tr>
</tbody>
</table>
Selected comment of a non-teaching principal

"I think it is important to have demonstration lessons at all levels in every area. The teachers should be notified and attendance should be optional."

There should be a definite appraisal made of the supervisory visits to the classrooms so that the work of these highly trained workers can be made most helpful to all teachers regardless of preparation and experience.

Table 18 gives the ratings of principals regarding the direct use of materials.

The first item, actual use of textbooks, teachers' manuals and workbooks received the high rating of 4.6 for non-teaching principals and a 4.5 for teaching principals. It would be revealing to find out if this reaction is due to the excellence of the materials or an over-dependence on the textbook.

The second and third items in this table received a 3.4 mean by non-teaching principals and a 3.2 mean by teaching principals respectively. This is evidence that these activities have been partially successful and they should be regarded as areas in which attention should be directed for the purpose of improving their use.

Tests administered by the School Board Office received a low mean score of 2.7 by both groups. These tests are being discontinued as they have never been too effective.
TABLE 18

MEAN SCORES, STANDARD DEVIATIONS, LEVELS OF SIGNIFICANCE OF DIRECT USE OF MATERIALS FOR NON-TEACHING PRINCIPALS AND TEACHING PRINCIPALS

<table>
<thead>
<tr>
<th>Items</th>
<th>Non-Teaching Principals</th>
<th>Teaching Principals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 29</td>
<td>N = 38</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>a. Actual use of textbooks, teachers' manuals and workbooks</td>
<td>4.655</td>
<td>.483</td>
</tr>
<tr>
<td>b. Shared samples of teacher-prepared materials to supplement textbook material</td>
<td>3.483</td>
<td>1.121</td>
</tr>
<tr>
<td>c. Standardized tests provided by publishing company</td>
<td>3.414</td>
<td>1.239</td>
</tr>
<tr>
<td>d. Tests administered through School Board Office</td>
<td>2.724</td>
<td>1.161</td>
</tr>
<tr>
<td>e. Films prepared by authors of the mathematics program</td>
<td>2.621</td>
<td>1.177</td>
</tr>
</tbody>
</table>
There was a difference in the ratings given the use of films by the two groups. Non-teaching principals had only a 2.6 mean while the teaching principals had a 3.3 mean. Perhaps the fact that the teaching principals were actively engaged in teaching the new mathematics is the reason for the difference in the two means which was significant at the .001 level.

Table 19 gives the results regarding other activities. Professional reading was considered very important by both groups of principals. The non-teaching principals had a 4.0 mean and the teaching principals had a 4.1 mean. This implies that all of these principals would include this item in any in-service program.

Discussion with other teachers also received a 4.0 mean by the non-teaching principals and a 4.2 mean by the teaching principals. This item is especially important in this school system which not only has two distinct groups of teachers--lay and religious--but also six different groups of religious women staffing the schools. Unless there is frequent communication between these groups, a sense of unity and cooperation could easily be lost. Every effort must be made to give this activity high priority in an in-service education program.

Conducting classes in modern mathematics for interested students outside of school time received a 2.9 mean by the non-teaching principals and a 3.0 mean by the teach-
## TABLE 19

### MEAN SCORES, STANDARD DEVIATIONS, LEVELS OF SIGNIFICANCE OF OTHER ACTIVITIES FOR NON-TEACHING PRINCIPALS AND TEACHING PRINCIPALS

<table>
<thead>
<tr>
<th>Items</th>
<th>Non-Teaching Principals</th>
<th>Teaching Principals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 29</td>
<td>N = 38</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>a. Professional Reading</td>
<td>4.034</td>
<td>1.085</td>
</tr>
<tr>
<td>b. Discussion with other teachers</td>
<td>4.034</td>
<td>.778</td>
</tr>
<tr>
<td>c. Conducting classes in modern mathematics for interested students outside of school time</td>
<td>2.931</td>
<td>1.279</td>
</tr>
</tbody>
</table>
The fact that the teaching principals were the ones who actually conducted these classes rather than the non-teaching principals accounts for the difference in the mean scores. However, it is strange that the activity did not receive a higher rating by the teaching principals since this activity was carried on through the first five years of the program before the new mathematics was introduced into the upper grades.

Table 20 gives the mean scores, standard deviations, and levels of significance of five categories of in-service activities in the light of future in-service education programs.

The findings reported in this table show that the principals considered these activities important for future in-service education programs. The first item, workshops and meetings, had a 3.1 mean for the non-teaching principals and a 3.6 mean for the teaching principals. The difference in these scores is significant at the .001 level.

Formal classes rated a 4.2 mean by the non-teaching principals and a 4.3 by the teaching principals. Again the difference was significant at the .001 level.

Supervisory assistance had a mean of 3.2 by non-teaching principals and a 3.4 mean by teaching principals. Direct use of materials had the high rating of a 4.3 mean by non-teaching principals and a 4.4 by teaching principals. The last item, other activities, had a 3.4 mean by
<table>
<thead>
<tr>
<th>Items</th>
<th>Non-Teaching Principals</th>
<th>Teaching Principals</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 29</td>
<td>N = 38</td>
<td></td>
</tr>
<tr>
<td>a. Workshops and Meetings</td>
<td>3.172 1.104</td>
<td>3.632 .997</td>
<td>.001</td>
</tr>
<tr>
<td>b. Formal Classes</td>
<td>4.207 .818</td>
<td>4.368 .633</td>
<td>.001</td>
</tr>
<tr>
<td>c. Supervisory Assistance</td>
<td>3.276 .840</td>
<td>3.421 1.130</td>
<td>.05</td>
</tr>
<tr>
<td>d. Direct Use of Materials</td>
<td>4.345 .669</td>
<td>4.421 .642</td>
<td>.10</td>
</tr>
<tr>
<td>e. Other Activities</td>
<td>3.448 1.212</td>
<td>3.974 .716</td>
<td>.001</td>
</tr>
</tbody>
</table>
non-teaching principals and a 3.9 mean by teaching principals. Again the difference between the last two means was significant to the .001 level.

For each item in this table the mean of the teaching principals was higher than that of the non-teaching principals. This could be indicative of the fact that the teacher is more perceptive concerning the value of an in-service activity. At least, it points up the fact that no in-service education program should be planned without involving the teachers and providing an opportunity for them to express their needs.

Table 21 includes the responses to Questions 14, 15, 16, and 17.

The first item, voluntary participation, was rated a 3.7 mean by non-teaching principals and a mean of 4.1 by teaching principals. The difference in the means was found to be significant at the .001 level. The reasons for this difference are important. A further investigation would be worthwhile to discover if the non-teaching principals are cognizant of the fact that unless teachers see the need of participating in in-service education, they will not profit from the activity.

The second item, recognition of individual difference had a 4.4 mean score by both groups. This high rating makes this point of utmost importance in planning future in-service programs.
TABLE 21

MEAN SCORES, STANDARD DEVIATIONS AND LEVELS OF SIGNIFICANCE OF VOLUNTARY PARTICIPATION, RECOGNITION OF INDIVIDUAL DIFFERENCES, RECOGNITION BY SCHOOL OFFICIALS AND EVALUATION STUDIES IN THE LIGHT OF FUTURE IN-SERVICE EDUCATION PROGRAMS FOR NON-TEACHING PRINCIPALS AND TEACHING PRINCIPALS

<table>
<thead>
<tr>
<th>Items</th>
<th>Non-Teaching Principals</th>
<th>Teaching Principals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>a. Voluntary Participation</td>
<td>3.793</td>
<td>1.346</td>
</tr>
<tr>
<td>b. Recognition of Individual Differences</td>
<td>4.448</td>
<td>0.909</td>
</tr>
<tr>
<td>c. Recognition by School Officials</td>
<td>3.483</td>
<td>1.242</td>
</tr>
<tr>
<td>D. Evaluation Studies</td>
<td>3.690</td>
<td>1.198</td>
</tr>
</tbody>
</table>
The third item, recognition by school officials, had a 3.4 mean for non-teaching principals and a 3.6 mean for teaching principals. All principals are religious so this points up the fact that such recognition must be of some nature other than financial reward since the teachers do not work for a regular salary in the sense that lay teachers do. This recognition will be a new approach in the Louisville parochial system, but no doubt, will be a very effective instrument in establishing a more effective in-service education program for all teachers and principals.

The last item, evaluation studies, received a comparatively high rating of 3.6 by non-teaching principals and a 3.8 by teaching principals. Since this is the first such study of this in-service education program, it is encouraging to note these mean scores. Ways should be found to share the findings of this study with the teachers and principals involved so that there will be a willing response to such studies in the future.

Table 22 gives the reactions of principals to the importance of curriculum changes.

The first area investigated was language arts. The mean score for non-teaching principals was 2.9 while that of the teaching principals was 3.2. The difference was found to be significant to the .001 level. This reaction may be explained by the fact that a new English series has been adopted within the past two years, but evidently the
<table>
<thead>
<tr>
<th>Items</th>
<th>Non-Teaching Principals</th>
<th></th>
<th>Teaching Principals</th>
<th></th>
<th>Level of Significance</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>N = 29</td>
<td></td>
<td>N = 38</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
<td>Mean</td>
<td>Standard Deviation</td>
<td></td>
</tr>
<tr>
<td>a. Language Arts</td>
<td>2.931</td>
<td>1.667</td>
<td>3.211</td>
<td>1.297</td>
<td>.001</td>
</tr>
<tr>
<td>b. Social Studies</td>
<td>2.931</td>
<td>1.556</td>
<td>3.105</td>
<td>1.203</td>
<td>.10</td>
</tr>
<tr>
<td>c. Music</td>
<td>3.724</td>
<td>1.485</td>
<td>3.342</td>
<td>1.380</td>
<td>.001</td>
</tr>
<tr>
<td>d. Art</td>
<td>3.345</td>
<td>1.470</td>
<td>3.158</td>
<td>1.053</td>
<td>.05</td>
</tr>
<tr>
<td>e. Science</td>
<td>2.759</td>
<td>1.479</td>
<td>3.368</td>
<td>1.076</td>
<td>.001</td>
</tr>
<tr>
<td>f. Religion</td>
<td>3.552</td>
<td>1.660</td>
<td>3.895</td>
<td>1.429</td>
<td>.01</td>
</tr>
</tbody>
</table>
teaching principals are not as satisfied with the series as the non-teaching principals.

Social studies received a 2.9 mean score by the non-teaching principals and a 3.1 mean score by the teaching principals. There has been a recent change in the textbooks in the area also.

Music received a 3.7 mean by the non-teaching principals and a 3.3 mean by the teaching principals. Many from both groups of principals commented on the need for change here.

Selected comment of a non-teaching principal

"Since music is an important subject in the elementary school, I think a revision is needed in the curriculum so that the lay teachers can take care of their own classes. In some schools, the sisters are teaching two or three music classes."

Selected comment of a teaching principal

"We need some form of music that lay teachers can teach and that children will enjoy singing."

Art rated a 3.3 mean score by the non-teaching principals and a 3.1 mean score by teaching principals. This is about the same rating art received from both groups of teachers (see Table 14).

Science was rated a 2.7 by non-teaching principals and a 3.3 by teaching principals. Evidently there is not too
much concern about changing the curriculum in this area.

Religion had the highest mean scores of the six subject matter areas listed in Table 22. The non-teaching principals had a 3.5 mean and the teaching principals a 3.8 mean.

The principals were much more concerned about how curriculum changes were made than the area chosen. The following comments will demonstrate this.

Selected comment of a teaching principal

"My opinion is that there should be a greater involvement of principals and teachers in curriculum changes. The teachers are the ones who use the texts and I feel that their years of experience should be considered."

Principals also showed concern for the lack of provision being made for schools in the lower socio-economic areas.

Selected comment of a teaching principal

"The School Board must take note that all schools cannot be held to the same requirements. Some of our schools have children who come from families with small incomes and whose parents are uneducated with little interest in things educational. In such schools, the pupils average two to four years below grade level. Nothing is done to adjust to this situation. Because my children are registered as eighth graders, I must use only eighth grade texts
as recommended, regardless of the fact that two-thirds of the class cannot manage the material. The frustration of teachers and pupils increases each year."

The ideas expressed in the last two selected comments were expressed frequently by both principals and teachers in their responses to the open-ended question.

Summary

The hypothesis that there would be no difference in the reactions of non-teaching and teaching principals to in-service education has not been verified. The differences have been significant at various levels; the study shows that these two groups must be considered as distinct and their interests and needs must be carefully weighed in planning future in-service education programs.

Material Relating to Teachers 29 Years or Younger and Teachers 30 Years or Older

Another purpose of the study was to compare the reaction of teachers 29 years or younger with those of teachers 30 years or older in order to evaluate the in-service programs in its effectiveness for these two groups.

Table 23 gives the mean scores of the two groups for the five items listed under workshops and meetings in Question 8.

The younger teachers had a mean of 2.9 for in-service workshops while the older teachers' mean was 3.2 This in-
<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers 29 years or younger Mean</th>
<th>Teachers 30 years or older Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. In-service workshops (2-5 days)</td>
<td>2.915</td>
<td>3.225</td>
</tr>
<tr>
<td>b. Periodic meetings for groups of teachers according to grade(s)</td>
<td>3.264</td>
<td>3.186</td>
</tr>
<tr>
<td>taught (primary, intermediate, upper)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Professional talks at faculty meetings</td>
<td>2.859</td>
<td>2.807</td>
</tr>
<tr>
<td>d. Talks at system-wide teachers' meetings</td>
<td>2.866</td>
<td>3.040</td>
</tr>
<tr>
<td>e. Meetings and conferences sponsored by professional organizations</td>
<td>2.866</td>
<td>2.814</td>
</tr>
</tbody>
</table>
icates that in the planning of these activities more consideration should have been given to the needs of the younger teachers.

The mean for periodic meetings for groups of teachers according to grade(s) taught was 3.2 for the younger teachers and 3.1 for the older teachers. While this shows only a moderate success in the carrying out of these meetings, it does suggest that here is an area that could be developed into a meaningful experience for both groups.

Professional talks at faculty meetings and meetings and conferences sponsored by professional organizations had a 2.8 mean for both groups. The fact that they were considered of little importance for either group may suggest that the teachers were not prepared to profit by these activities or that they were not planned to meet the needs of these teachers. Careful investigation is needed here.

Talks at system-wide teachers' meetings also received a 2.8 mean by the younger group and a 3.0 by the older teachers. Since these meetings are planned specifically for these teachers, a concerted effort is needed to make them more effective.

Four of the five items listed in Table 23 received a 2.8 or a 2.9 mean by the younger teachers which is a clear indication of a lack of effectiveness of this portion of the in-service program for these teachers.
Table 24 contains the mean scores of formal classes for the two groups.

TABLE 24

MEAN SCORES OF FORMAL CLASSES FOR ALL TEACHERS 29 YEARS OR YOUNGER AND ALL TEACHERS 30 YEARS OR OLDER

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers 29 years or younger</th>
<th>Teachers 30 years or older</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. College courses in the teaching of the new mathematics</td>
<td>4.221</td>
<td>3.893</td>
</tr>
<tr>
<td>b. Series of classes covering subject matter of one grade</td>
<td>3.764</td>
<td>3.809</td>
</tr>
</tbody>
</table>

College courses in the teaching of the new mathematics had the high mean of 4.2 for the younger teachers and a 3.8 for the older teachers. Since many of the younger teachers do not have their degrees (see Table 3), this fact probably accounts for the difference in these means.

The series of classes covering subject matter of one grade had a 3.7 mean for the younger teachers and a 3.8 mean for the older teachers. The difference in these scores is too small to be of importance.
Table 25 contains the mean scores of supervisory assistance for these two groups.

### TABLE 25

**MEAN SCORES OF SUPERVISORY ASSISTANCE FOR ALL TEACHERS 29 YEARS OR YOUNGER AND ALL TEACHERS 30 YEARS OR OLDER**

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers 29 years or younger</th>
<th>Teachers 30 years or older</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Classroom observation by supervisor followed by individual conference</td>
<td>3.473</td>
<td>3.144</td>
</tr>
<tr>
<td>b. Demonstration classes</td>
<td>3.799</td>
<td>3.620</td>
</tr>
<tr>
<td>c. Visits to other teachers' classrooms</td>
<td>3.799</td>
<td>3.206</td>
</tr>
</tbody>
</table>

The three items in this table were all rated higher by the younger teachers than the older teachers. The mean for classroom observation by supervisor followed by individual conference was a 3.4 for the younger group and a 3.1 for the older group. Demonstration classes had a 3.7 mean for the first group and a 3.6 for the second group. Visits to other teachers' classrooms had a 3.7 mean for the younger teachers and a 3.2 for the older teachers.
The exact role of the supervisor seems to be questioned by some teachers as the following comment shows.

**Selected comment of a religious teacher**

"According to my observation of supervisors in three different areas and according to experts in the field, there seems to be a conflict as to their exact role. At present, their role seems to be to give the teacher a 'grade' on her teaching. Most teachers want help and would welcome a real consultant."

The feeling that demonstration lessons and visits to other teachers' classes were most helpful was expressed often in the suggestions of the teachers in response to the open-ended Question 19. The following comment is typical.

**Selected comment of a lay teacher**

"I think that in-service teachers should have more time to observe other teachers. We need new ideas and I think we all would like to share. Maybe it could be arranged that once a month we could be relieved of our classes to observe another teacher."

The area of supervisory assistance is of utmost importance in a school system which has such a high turnover of teachers (see Table 4). Therefore, every effort should be made to make the items listed in Table 25 as effective as possible.
Table 26 gives the mean scores of direct use of materials for the two groups.

**TABLE 26**

**MEAN SCORES OF DIRECT USE OF MATERIALS FOR ALL TEACHERS 29 YEARS OR YOUNGER AND ALL TEACHERS 30 YEARS OR OLDER**

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Actual use of textbooks, teachers' manuals and workbooks</td>
<td>4.450</td>
<td>4.505</td>
</tr>
<tr>
<td>b. Shared samples of teacher-prepared materials to supplement textbook material</td>
<td>3.609</td>
<td>3.379</td>
</tr>
<tr>
<td>c. Standardized tests provided by publishing company</td>
<td>2.982</td>
<td>3.156</td>
</tr>
<tr>
<td>d. Tests administered through School Board Office</td>
<td>2.775</td>
<td>2.898</td>
</tr>
<tr>
<td>e. Films prepared by authors of the mathematics program</td>
<td>3.043</td>
<td>3.000</td>
</tr>
</tbody>
</table>

The first item, actual use of textbooks, teachers' manuals and workbooks was valued highly by both groups as
the 4.4 mean for the younger teachers and the 4.5 for the older teachers show.

Shared samples of teacher-prepared materials to supplement textbook material was rated a 3.6 mean by the younger teachers and a 3.3 mean by the older teachers. Both groups found this activity to be of some importance and the difference in ages of the teachers.

Standardized tests provided by the publishing company had 2.9 mean by the younger teachers and a 3.1 by the older teachers. Since the traditional standardized achievement tests are not effective in measuring the results of the new mathematics program, it is difficult to understand why the above-mentioned tests were not rated more highly.

Tests administered by the School Board Office rated a 2.7 mean by the younger group and a 2.8 by the older group. The consistency seen here in the low rating of this activity has been found with other groups in this study.

Films prepared by authors of the mathematics program were given a 3.0 mean by both groups.

Table 27 lists the mean scores of other activities for the two groups of teachers.

The first item, professional reading had a 3.6 mean for the younger teachers and a 3.8 for the older teachers. This difference is not great, but the rating of each group is surprisingly low and greater efforts should be made to
increase the importance of professional reading for both groups.

**TABLE 27**

**MEAN SCORES OF OTHER ACTIVITIES FOR ALL TEACHERS 29 YEARS OR YOUNGER AND ALL TEACHERS 30 YEARS OR OLDER**

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers 29 years or younger</th>
<th>Teachers 30 years or older</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Professional Reading</td>
<td>3.638</td>
<td>3.809</td>
</tr>
<tr>
<td>b. Discussion with other teachers</td>
<td>3.910</td>
<td>3.834</td>
</tr>
<tr>
<td>c. Conducting classes in modern mathematics for interested students outside of school time</td>
<td>3.039</td>
<td>2.856</td>
</tr>
</tbody>
</table>

Discussion with other teachers had a 3.9 mean for the first group and a 3.8 for the second group. The difference in the two mean scores is slight and shows the willingness of both groups to engage in this activity to a greater extent.

Conducting classes in modern mathematics for interested students outside of school time had a 3.0 mean for the younger teachers and a 2.8 for the older teachers. Though the difference is not great, it may be indicative of more
of a willingness of the younger teachers to experiment on their own with the new mathematics.

Table 28 shows the mean scores of the five categories of in-service activities in the light of future in-service education programs for the two groups of teachers.

**TABLE 28**

*MEAN SCORES OF FIVE CATEGORIES OF IN-SERVICE ACTIVITIES IN THE LIGHT OF FUTURE IN-SERVICE EDUCATION PROGRAMS FOR ALL TEACHERS 29 YEARS OR YOUNGER AND ALL TEACHERS 30 YEARS OR OLDER*

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers 29 years or younger</th>
<th>Teachers 30 years or older</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Workshops and Meetings</td>
<td>3.101</td>
<td>3.315</td>
</tr>
<tr>
<td>b. Formal Classes</td>
<td>3.740</td>
<td>3.651</td>
</tr>
<tr>
<td>c. Supervisory Assistance</td>
<td>3.475</td>
<td>3.277</td>
</tr>
<tr>
<td>d. Direct Use of Materials</td>
<td>3.959</td>
<td>4.060</td>
</tr>
<tr>
<td>e. Other Activities</td>
<td>3.543</td>
<td>3.417</td>
</tr>
</tbody>
</table>

The first item, workshops and meetings, had a 3.1 mean for the first group and a 3.3 for the second; formal classes rated a 3.7 mean by the younger group and a 3.6 by the older group; supervisory assistance had a 3.4 mean for the younger teachers and a 3.2 for the older...
teachers; direct use of material had the highest mean in this list with a 3.9 for the first group and a 4.0 for the second; other activities had a 3.5 for the younger group and a 3.4 for the older. Since all of the categories received a 3.1 mean or above by each group, they may be judged as worthy of consideration for further in-service programs and efforts should be made to increase their effectiveness for all teachers.

Table 24 deals with the responses from Questions 14, 15, 16, and 17.

<table>
<thead>
<tr>
<th>TABLE 29</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN SCORES OF VOLUNTARY PARTICIPATION, RECOGNITION OF INDIVIDUAL DIFFERENCES, RECOGNITION BY SCHOOL OFFICIALS AND EVALUATION STUDIES IN THE LIGHT OF FUTURE IN-SERVICE EDUCATION PROGRAMS FOR ALL TEACHERS 29 YEARS OR YOUNGER AND ALL TEACHERS 30 YEARS OR OLDER</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers 29 years or younger</th>
<th>Teachers 30 years or older</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 350</td>
<td>N = 445</td>
<td></td>
</tr>
<tr>
<td>a. Voluntary Participation</td>
<td>3.917</td>
<td>3.627</td>
</tr>
<tr>
<td>b. Recognition of Individual Differences</td>
<td>4.185</td>
<td>4.065</td>
</tr>
<tr>
<td>c. Recognition by School Officials</td>
<td>3.424</td>
<td>3.395</td>
</tr>
<tr>
<td>d. Evaluation Studies</td>
<td>3.601</td>
<td>3.562</td>
</tr>
</tbody>
</table>
Voluntary participation had a 3.9 mean for the younger teachers and a 3.6 for the older teachers. Recognition of individual difference had a high mean of 4.1 for the first group and a 4.0 for the second. Recognition by School Officials was rated a 3.4 mean by the younger teachers and a 3.3 mean by the older ones while evaluation studies had a 3.6 by the younger group and a 3.5 by the older one. The differences in these four sets of scores are not great and show a great deal of similarity of thinking on the part of these teachers regardless of the age group.

Table 30 gives the mean scores of the importance of curriculum change for the groups.

The areas of language arts and social studies were not considered areas that needed changing by these two groups. The first had a 2.9 mean for both groups and the second had a 2.6 for the younger teachers and a 2.8 for the older ones.

The younger teachers had a 3.2 mean for both music and art while the older teachers had a 3.0 mean for both areas. This shows only a moderate concern for change. Science had a 3.4 mean for the first group and a 3.1 for the second. This shows that the concern for change in this area is scarcely strong enough to be very influential.

Religion, with a 3.6 mean for the first group and a 3.3 for the second, was the area in which future curriculum change seemed most desirable. One reason could be that
the lay teachers are found in large numbers among the younger group and often the lay teachers feel quite diffident about the teaching of this subject.

### TABLE 30

**MEAN SCORES OF THE IMPORTANCE OF CURRICULUM CHANGES FOR ALL TEACHERS 29 YEARS OR YOUNGER AND ALL TEACHERS 30 YEARS OR OLDER**

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers 29 years or younger</th>
<th>Teachers 30 years or older</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>a. Language Arts</td>
<td>2.998</td>
<td>2.912</td>
</tr>
<tr>
<td>b. Social Studies</td>
<td>2.670</td>
<td>2.828</td>
</tr>
<tr>
<td>c. Music</td>
<td>3.268</td>
<td>3.086</td>
</tr>
<tr>
<td>d. Art</td>
<td>3.263</td>
<td>3.063</td>
</tr>
<tr>
<td>e. Science</td>
<td>3.486</td>
<td>3.133</td>
</tr>
<tr>
<td>f. Religion</td>
<td>3.656</td>
<td>3.396</td>
</tr>
</tbody>
</table>

**Summary**

Again the hypothesis that there would be no difference in the responses of younger and older teachers has not been confirmed. In over 60 per cent of the items the younger teachers rated them higher than did the older teachers. This indicates the need for further research to discover why these differences exist.
Material Relating to Teachers with 1-3 Years Participation and Teachers with 4-7 Years Participation in In-Service Education Program from 1958 through 1965

Another purpose of this study was to compare the responses of the teachers who had participated in the in-service education program for 1-3 years with those who had participated for 4-7 years.

Table 21 gives the mean scores of these two groups concerning their evaluation of the items listed under workshops and meetings.

In-service workshops had a 3.0 mean score for both groups; periodic meetings for groups of teachers according to grade(s) taught had a 3.2 mean for both groups; talks at system-wide teachers' meetings had a 3.0 mean for both groups, and meetings and conferences sponsored by professional organizations had a 2.9 mean score for both groups. The only item that had a different mean score for the two groups was professional talks at faculty meetings with a 2.8 for the teachers with 1-3 years participation and a 2.6 for the teachers with 4-7 years participation.

This similarity is striking and shows that none of these items was valued above "some importance" by these teachers. While this is not an entirely negative response, it does show that efforts are needed to increase the value of these items in the eyes of participating teachers.

Table 32 gives the mean scores of formal classes for the two groups.
<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers 1-3 years</th>
<th>Teachers 4-7 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. In-service workshops (2-5 days)</td>
<td>3.021</td>
<td>3.096</td>
</tr>
<tr>
<td>b. Periodic meetings for groups of teachers according to grade(s)</td>
<td>3.272</td>
<td>3.248</td>
</tr>
<tr>
<td>c. Professional talks at faculty meetings</td>
<td>2.873</td>
<td>2.681</td>
</tr>
<tr>
<td>d. Talks at system-wide teachers' meetings</td>
<td>3.003</td>
<td>3.095</td>
</tr>
<tr>
<td>e. Meetings and conferences sponsored by professional organizations</td>
<td>2.907</td>
<td>2.912</td>
</tr>
</tbody>
</table>

College courses rated a 4.0 mean by the teachers participating for 1-3 years and 4.1 by teachers participating 4-7 years. This is a high rating and implies the importance of such courses as part of an in-service program.
TABLE 32
MEAN SCORES OF FORMAL CLASSES FOR ALL TEACHERS WITH 1-3 YEARS PARTICIPATION AND ALL TEACHERS WITH 4-7 YEARS PARTICIPATION IN THE IN-SERVICE EDUCATION PROGRAM FROM 1958 THROUGH 1965

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers 1-3 years</th>
<th>Teachers 4-7 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 366</td>
<td>N = 430</td>
</tr>
<tr>
<td>a. College courses in the teaching of the new mathematics</td>
<td>4.024</td>
<td>4.131</td>
</tr>
<tr>
<td>b. Series of classes covering subject matter of one grade</td>
<td>3.745</td>
<td>3.816</td>
</tr>
</tbody>
</table>

Series of classes covering subject matter of one grade had a 3.7 mean for the first group and a 3.8 for the second. This rating is consistent with the results shown in Table 8 and in Table 24 and indicates that the different groups of teachers value this activity to an encouraging extent. Again the similarity of the mean scores is striking.

Table 33 deals with the mean scores relating to supervisory assistance.

The mean for the first item, classroom observation by supervisor followed by individual conference was a 3.3 for the teachers with 1-3 years participation and a 3.2 for
those with 4-7 years. The mean for demonstration was 3.6 for both groups. Visits to other teachers' classrooms had a 3.4 mean for the first group and a 3.3 for the second group.

**TABLE 33**

**MEAN SCORES OF SUPERVISORY ASSISTANCE FOR ALL TEACHERS WITH 1-3 YEARS PARTICIPATION AND ALL TEACHERS WITH 4-7 YEARS PARTICIPATION IN THE IN-SERVICE EDUCATION PROGRAM FROM 1958 THROUGH 1965**

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers 1-3 years</th>
<th>Teachers 4-7 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Classroom observation by supervisor followed by individual conference</td>
<td>3.356</td>
<td>3.223</td>
</tr>
<tr>
<td>b. Demonstration classes</td>
<td>3.604</td>
<td>3.650</td>
</tr>
<tr>
<td>c. Visits to other teachers' classrooms</td>
<td>3.426</td>
<td>3.375</td>
</tr>
</tbody>
</table>

Again the most striking thing about these mean scores for both groups is their similarity.

Table 34 gives the mean scores for the direct use of materials.

From this table, the similarity of the responses of these two groups is again evident. The first item, actual
use of textbooks, teachers' manuals workbooks, had a 4.4 mean for both groups. This is the highest rating given to any item by these two groups.

TABLE 34

MEAN SCORES OF DIRECT USE OF MATERIALS FOR ALL TEACHERS WITH 1-3 YEARS PARTICIPATION AND ALL TEACHERS WITH 4-7 YEARS PARTICIPATION IN THE IN-SERVICE EDUCATION PROGRAM FROM 1958 THROUGH 1965

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers 1-3 years</th>
<th>Teachers 4-7 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Actual use of textbooks, teachers' manuals and workbooks</td>
<td>4.435</td>
<td>4.498</td>
</tr>
<tr>
<td>b. Shared samples of teacher-prepared materials to supplement textbook material</td>
<td>3.542</td>
<td>3.475</td>
</tr>
<tr>
<td>c. Standardized tests provided by publishing company</td>
<td>3.022</td>
<td>3.119</td>
</tr>
<tr>
<td>d. Tests administered through School Board Office</td>
<td>2.779</td>
<td>2.816</td>
</tr>
<tr>
<td>e. Films prepared by authors of the mathematics program</td>
<td>2.974</td>
<td>2.937</td>
</tr>
</tbody>
</table>
Shared samples of teacher-prepared materials to supplement textbook material had a 3.5 mean for the first group and a 3.4 for the second group. Standardized tests provided by the publishing company rated a 3.0 mean by the first group and a 3.1 by the second. These two items are not rated so highly as the first one in this group and further investigation in these areas would be helpful.

The last item, films prepared by the author of the mathematics program, had the low mean of 2.9 for both groups.

Table 35 gives the mean scores of other activities.

### Table 35
MEAN SCORES OF OTHER ACTIVITIES FOR ALL TEACHERS WITH 1-3 YEARS PARTICIPATION AND ALL TEACHERS WITH 4-7 YEARS PARTICIPATION IN THE IN-SERVICE EDUCATION PROGRAM FROM 1958 THROUGH 1965

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers 1-3 years</th>
<th>Teachers 4-7 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 366</td>
<td>N = 430</td>
<td></td>
</tr>
<tr>
<td>a. Professional Reading</td>
<td>3.729</td>
<td>3.844</td>
</tr>
<tr>
<td>b. Discussions with other teachers</td>
<td>3.925</td>
<td>3.893</td>
</tr>
<tr>
<td>c. Conducting classes in modern mathematics for interested students outside of school time</td>
<td>3.015</td>
<td>2.898</td>
</tr>
</tbody>
</table>
The first item, professional reading, had a mean of 3.7 for the first group and a 3.8 for the second group. The second item, discussions with other teachers, had a 3.9 for the first group and a 3.8 for the second group. Again these scores are nearly identical. However, it is difficult to explain why those who have been participating in the program for a longer period of time would not have rated the items higher.

There is some difference in the scores for the last item, conducting classes in modern mathematics for interested students outside of school time. The first group had a mean of 3.0 while the second group had a mean of 2.8.

Table 36 gives the mean scores of five categories of in-service activities in the light of future in-service education.

In evaluating these activities in the light of future in-service education, these two groups were consistent in the similarity of their responses. Workshops and meetings had a 3.3 mean for the first group and a 3.2 for the second. Both groups had a 3.7 mean for formal classes. Supervisory assistance rated a 3.4 by the first group and a 3.3 by the second. Direct use of materials had a 4.1 by the group with fewer years of participation and a 4.0 by the group with more years. Other activities received a 3.5 rating by the teachers with 1-3 years of participation and a 3.4 by the teachers with 4-7 years.
TABLE 36

MEAN SCORES OF FIVE CATEGORIES OF IN-SERVICE ACTIVITIES IN THE LIGHT OF FUTURE IN-SERVICE EDUCATION PROGRAMS FOR ALL TEACHERS WITH 1-3 YEARS PARTICIPATION AND ALL TEACHERS WITH 4-7 YEARS PARTICIPATION IN THE IN-SERVICE EDUCATION PROGRAM FROM 1958 THROUGH 1965

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers 1-3 years</th>
<th>Teachers 4-7 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Workshops and Meetings</td>
<td>3.315</td>
<td>3.280</td>
</tr>
<tr>
<td>b. Formal Classes</td>
<td>3.736</td>
<td>3.749</td>
</tr>
<tr>
<td>c. Supervisory Assistance</td>
<td>3.437</td>
<td>3.324</td>
</tr>
<tr>
<td>d. Direct Use of Materials</td>
<td>4.123</td>
<td>4.084</td>
</tr>
<tr>
<td>e. Other Activities</td>
<td>3.577</td>
<td>3.479</td>
</tr>
</tbody>
</table>

All of these mean scores are high enough to indicate that these activities have been valuable.

Table 37 gives the mean scores of the responses for Questions 14, 15, 16, and 17.

The mean scores in this table are still more similar. Voluntary participation had a mean score of 3.7 for both groups. There is a slight difference for recognition of individual differences with a 4.2 mean for the first group and a 4.1 for the second group. Recognition by school officials had a 3.4 for both groups and evaluation studies
132

had a 3.6 for both groups. The mean scores in this table are comparatively high and indicative of the careful consideration they should receive in future in-service education programs for these teachers.

**TABLE 37**

MEAN SCORES OF VOLUNTARY PARTICIPATION, RECOGNITION OF INDIVIDUAL DIFFERENCES, RECOGNITION BY SCHOOL OFFICIALS AND EVALUATION STUDIES IN THE LIGHT OF FUTURE IN-SERVICE EDUCATION PROGRAMS FOR ALL TEACHERS WITH 1-3 YEARS PARTICIPATION AND ALL TEACHERS WITH 4-7 YEARS PARTICIPATION IN THE IN-SERVICE EDUCATION PROGRAM FROM 1958 THROUGH 1965

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers 1-3 years</th>
<th>Teachers 4-7 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 366</td>
<td>N = 430</td>
<td></td>
</tr>
<tr>
<td>a. Voluntary Participation</td>
<td>3.794</td>
<td>3.711</td>
</tr>
<tr>
<td>b. Recognition of Individual Differences</td>
<td>4.217</td>
<td>4.122</td>
</tr>
<tr>
<td>c. Recognition by School Officials</td>
<td>3.452</td>
<td>3.411</td>
</tr>
<tr>
<td>d. Evaluation Studies</td>
<td>3.673</td>
<td>3.600</td>
</tr>
</tbody>
</table>

Table 38 gives the mean scores for the importance of curriculum change in several subject matter areas.
### TABLE 38

**MEAN SCORES OF THE IMPORTANCE OF CURRICULUM CHANGES FOR ALL TEACHERS WITH 1-3 YEARS PARTICIPATION AND ALL TEACHERS WITH 4-7 YEARS PARTICIPATION IN THE IN-SERVICE EDUCATION PROGRAM FROM 1958 THROUGH 1965**

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers 1-3 years</th>
<th>Teachers 4-7 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>a. Language Arts</td>
<td>2.946</td>
<td>3.195</td>
</tr>
<tr>
<td>b. Social Studies</td>
<td>2.964</td>
<td>2.967</td>
</tr>
<tr>
<td>c. Music</td>
<td>3.311</td>
<td>3.224</td>
</tr>
<tr>
<td>d. Art</td>
<td>3.113</td>
<td>3.230</td>
</tr>
<tr>
<td>e. Science</td>
<td>3.337</td>
<td>3.275</td>
</tr>
<tr>
<td>f. Religion</td>
<td>3.548</td>
<td>2.065</td>
</tr>
</tbody>
</table>

In the mean scores in this table, there is a great similarity in the responses of the two groups concerning social studies, music, art, and science. For social studies, the mean is 2.9 for both groups; for music the mean is 3.3 for the first group and 3.2 for the second; for art, the mean is 3.1 for the first group and 3.2 for the second; for science, the mean for the first group is 3.3 and for the second it is 3.2.

In the area of language arts, the teachers with 1-3 years experience had a mean of 2.9 while those with 4-7
years had a mean of 3.1. In the field of religion there is even a greater difference. The first group had a mean of 3.5 while the second group had a mean of 2.0.

The one area in which the two groups disagree is that of religion. The teachers with 1-3 years participation seem to feel the need to revamp the religion course of studies so that the newer approaches being advocated can be used. They seem to be more vocal in expressing their opinions about this matter judging from the responses to Question 19.

**Summary**

The hypothesis that there would be no difference in the responses of the teachers with 1-3 years participation and those with 4-7 years participation has not been proved completely, but the responses of the two groups are similar to a striking degree.

**Material Relating to Primary and Upper Grade Teachers**

One purpose of this study was to compare the evaluation of the in-service education program by teachers in the primary grades with that of teachers in the upper grades. The information gained from this comparison would be used in setting up more effective in-service programs in the future.

Table 39 gives the mean scores of workshops and meetings for the two groups.
### TABLE 39
MEAN SCORES OF WORKSHOPS AND MEETINGS FOR ALL TEACHERS OF GRADES 1-3 AND ALL TEACHERS OF GRADES 7-8

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers Grades 1-3</th>
<th>Teachers Grades 7-8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 343</td>
<td>N = 180</td>
</tr>
<tr>
<td>a. In-service workshops (2-5 days)</td>
<td>2.925</td>
<td>3.182</td>
</tr>
<tr>
<td>b. Periodic meetings for groups of teachers according to grade(s) taught (primary, intermediate, upper)</td>
<td>3.335</td>
<td>3.195</td>
</tr>
<tr>
<td>c. Professional talks at faculty meetings</td>
<td>2.915</td>
<td>2.871</td>
</tr>
<tr>
<td>d. Talks at system-wide teachers' meetings</td>
<td>3.057</td>
<td>2.956</td>
</tr>
<tr>
<td>e. Meetings and conferences sponsored by professional organizations</td>
<td>2.896</td>
<td>2.899</td>
</tr>
</tbody>
</table>

The mean for in-service workshops was 2.9 for teachers of grades 1-3 and 3.1 for teachers of grades 7-8. Since the first group of teachers had participated in these workshops much longer than the second group, it was expected that they would evaluate them as favorably as the second group. A lay teacher gives a clue to the low rating.
Selected comment of a lay teacher

"I think the arithmetic workshops could be improved. During the workshop last summer, I noticed that most of the lectures were primarily for intermediate and upper grade teachers. As a primary teacher with no experience in the upper grades, I found the lectures unfruitful."

The mean for the second item, periodic meetings for groups of teachers according to grade taught, had a 3.3 mean for the primary teachers and a 3.1 for the upper grade teachers. While this mean score is moderately high, the comments of the teachers would lead one to expect it to be higher.

Selected comment of a religious teacher

"Opportunities for periodic meetings of teachers after at least one year of teaching in the area are important. If the teachers have not attempted to teach the material, they will not know what their problems are."

Selected comment of a lay teacher

"I think any activity which helps in bringing fellow-teachers into closer contact with each other would be of great value, especially any activity among the teachers of the same grade."

Professional talks at faculty meetings had a 2.9 mean for primary teachers and a 2.8 for upper grade teachers. This low rating by both groups is consistent with the
ratings of this activity by other groups. Unless a drastic change can be made in the securing of better speakers, the advantage of using time at faculty meetings this way is questionable.

Talks at system-wide meetings had a 3.0 mean for the first group and a 2.9 mean for the second group. This activity has been the chief procedure used in these meetings; it may be necessary to plan a greater variety of activities at these meetings instead of relying heavily on one approach.

Meetings and conferences sponsored by professional organizations was rated a 2.8 mean by both groups. This indicates a need for interesting teachers in the work of such groups especially at the local and state level which in turn would create a cognizance of the importance of national organizations.

Table 40 gives a picture of the way these two groups evaluated formal classes in response to Question 9.

The first item, college courses in the teaching of the new mathematics, had a 4.1 mean for the first group and a 3.9 for the second group. The difference in the ratings is explained by the fact that although the courses evidently have been quite helpful to both groups, they have dealt with the material in the first six grades. This information was necessary for both groups, but if the courses had included more material for the upper grades, the mean for
the second group would have been higher. There is a possibility that one course is not sufficient for the upper grade teachers, and a second may be required to prepare them adequately for the teaching of the new mathematics at the upper grade level.

TABLE 40
MEAN SCORES OF FORMAL CLASSES FOR ALL TEACHERS OF GRADES 1-3 AND ALL TEACHERS OF GRADES 7-8

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers Grades 1-3</th>
<th>Teachers Grades 7-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 343</td>
<td>N = 180</td>
<td></td>
</tr>
<tr>
<td>a. College courses in the teaching of the new mathematics</td>
<td>4.121</td>
<td>3.913</td>
</tr>
<tr>
<td>b. Series of classes covering the subject matter of one grade</td>
<td>3.828</td>
<td>3.780</td>
</tr>
</tbody>
</table>

Series of classes covering the subject matter of one grade were rated nearly the same by both groups with a 3.8 mean for the primary teachers, and a 3.7 for the upper grade teachers. These mean scores are indicative of the satisfaction of all teachers with this effort to assure mastery of content at each grade level. However, it should not be stressed to the point where teachers lose sight of
the need for each teacher to know the subject matter of all grades.

Table 41 shows the results of the evaluation of supervisory assistance by the two groups.

<table>
<thead>
<tr>
<th>TABLE 41</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAN SCORES OF SUPERVISORY ASSISTANCE FOR ALL TEACHERS OF GRADES 1-3 AND ALL TEACHERS OF GRADES 7-8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teachers</th>
<th>Grades 1-3</th>
<th>Teachers</th>
<th>Grades 7-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 343</td>
<td>N = 180</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Classroom observation by supervisor followed by individual conference</td>
<td>3.462</td>
<td>3.181</td>
</tr>
<tr>
<td>b. Demonstration classes</td>
<td>3.802</td>
<td>3.568</td>
</tr>
<tr>
<td>c. Visits to other teachers' classrooms</td>
<td>3.562</td>
<td>3.289</td>
</tr>
</tbody>
</table>

The first item, classroom observation by supervisor followed by individual conference, rated a 3.4 mean by the first group and a 3.1 by the second group. While this rating is encouraging, an effort should be made to improve this practice. With the large number of new teachers entering this system each year, the supervisors should be able to render invaluable assistance in this time-consuming but personal interaction with the individual teacher.
Demonstration classes had the comparatively high mean of 3.8 for primary teachers and a 3.5 mean for upper grade teachers. Comments from the teachers were favorable and frank.

Selected comment of a religious teacher

"Demonstration lessons on various grade levels by experts seem a most profitable approach to the teaching of new concepts."

Selected comment of a lay teacher

"Demonstration lessons should fit into the scheduled amount of time. A demonstration class should not take an hour when we have only one-half an hour to do the same thing in our classrooms."

Visitations to other teachers' classrooms received a 3.5 mean by primary teachers and a 3.2 by upper grade teachers. The difference can be explained by the fact that this practice is encouraged much more among teachers of grades 1-3 than among teachers of grades 7-8 in this particular school system.

Selected comment of a primary teacher

"I observed another teacher teaching the new mathematics and the visit to another teacher's class helped more than any other factor."
Selected comment of an upper grade teacher

"I feel that teachers should be encouraged to visit other teachers' classes. I think that a broader expanse of the knowledge of grades other than the one you are teaching is important. For instance, I teach the eighth grade, and it would be a great help to me if I could visit a seventh or a ninth grade class. This would help me greatly in knowing what to expect of my own class and in giving me a preview of what they will be facing in their high school years. I know that this is permitted in our system, but I don't feel that it is encouraged enough and perhaps the teachers do not realize how valuable such an experience is."

Table 42 contains the mean scores of direct use of materials for the two groups.

The first item, actual use of textbooks, teachers' manuals and workbooks, rated the consistently high mean scores found throughout the study on this item. The first group had a 4.5 mean and the second group had a 4.3. The great concern for mastery of subject matter is one of the areas that must be examined and studied in future programs.

Shared samples of teacher-prepared materials to supplement textbook material had a higher rating for the first group with a 3.6 mean and a 3.3 for the second group. Since the program has been in the primary grades much longer than in the seventh and eighth grades, more teach-
ers in the lower grades have profited from this sharing of ideas.

TABLE 42

MEAN SCORES OF DIRECT USE OF MATERIALS FOR ALL TEACHERS OF GRADES 1-3 AND ALL TEACHERS OF GRADES 7-8

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers Grades 1-3 Mean</th>
<th>Teachers Grades 7-8 Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Actual use of textbooks, teachers' manuals and workbooks</td>
<td>4.523</td>
<td>4.365</td>
</tr>
<tr>
<td>b. Shared samples of teacher-prepared materials to supplement textbook material</td>
<td>3.640</td>
<td>3.376</td>
</tr>
<tr>
<td>c. Standardized tests provided by publishing company</td>
<td>2.930</td>
<td>3.197</td>
</tr>
<tr>
<td>d. Tests administered through School Board Office</td>
<td>2.778</td>
<td>2.660</td>
</tr>
<tr>
<td>e. Films prepared by authors of the mathematics program</td>
<td>2.891</td>
<td>3.129</td>
</tr>
</tbody>
</table>

Standardized tests had a 2.9 rating by the first group and a 3.1 for the second group. Since these tests were for grades 3-8, it is clear why there would be a higher rating by the upper grade teachers.

Tests administered through the School Board received
a low rating of 2.7 by the first group and a 2.6 by the second group. This rating has been low throughout the findings of this study and clearly indicates that this item has not been satisfactory.

Films prepared by the authors of the mathematics program had a 2.8 mean for primary teachers and a 3.1 for the upper grade teachers. The difference in these scores is due to the fact that the films dealt mainly with the subject matter for grades 3-8 rather than that of grades 1-2.

Table 43 gives the mean scores of other activities for the two groups.

**TABLE 43**

MEAN SCORES OF OTHER ACTIVITIES FOR ALL TEACHERS OF GRADES 1-3 AND ALL TEACHERS OF GRADES 7-8

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers Grades 1-3</th>
<th>Teachers Grades 7-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Professional Reading</td>
<td>3.741</td>
<td>3.860</td>
</tr>
<tr>
<td>b. Discussion with other teachers</td>
<td>3.873</td>
<td>3.975</td>
</tr>
<tr>
<td>c. Conducting classes in modern mathematics for interested students outside of school time</td>
<td>2.896</td>
<td>3.103</td>
</tr>
</tbody>
</table>
The mean scores for the first item, professional reading, were 3.7 for the first group and 3.9 for the second group. Since these were scores for all teachers, the administrative personnel should find ways of increasing the appreciation for this important and essential activity. The large classes which are prevalent throughout this school system may be one reason for the lack of time spent in professional reading by the teachers.

Discussion with other teachers had a 3.8 mean for primary teachers and a 3.9 for upper grade teachers. Because of the two distinct groups of teachers—lay and religious—this activity is necessary and administrative personnel should strive to encourage more communication between them.

The last item, conducting classes in modern mathematics for interested students outside of school time, had a 2.8 mean for the first group and a 3.1 for the second. The program was in effect five years before it reached grade 7 and six years before it was used in grade 8. During these years the teachers of grades 7-8 were engaged in this activity much more than the teachers in grades 1-3 which explains the difference in the scores.

Table 44 deals with the scores of the five categories of in-service activities in the light of future in-service education for the two groups.

The mean for workshops and meetings was nearly the same for the two groups with a 3.3 for the first and 3.2 for the second.
**TABLE 44**

MEAN SCORES OF FIVE CATEGORIES OF IN-SERVICE ACTIVITIES IN THE LIGHT OF FUTURE IN-SERVICE EDUCATION PROGRAMS FOR ALL TEACHERS OF GRADES 1-3 AND ALL TEACHERS OF GRADES 7-8

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers Grades 1-3</th>
<th>Teachers Grades 7-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Workshops and Meetings</td>
<td>3.302</td>
<td>3.261</td>
</tr>
<tr>
<td>b. Formal Classes</td>
<td>3.676</td>
<td>4.015</td>
</tr>
<tr>
<td>c. Supervisory Assistance</td>
<td>3.458</td>
<td>3.253</td>
</tr>
<tr>
<td>d. Direct Use of Materials</td>
<td>4.101</td>
<td>4.171</td>
</tr>
<tr>
<td>e. Other Activities</td>
<td>3.461</td>
<td>3.657</td>
</tr>
</tbody>
</table>

There was quite a difference in the mean scores for formal classes with a 3.6 for the primary teachers and 4.0 for the upper grade teachers. Since the subject matter content for grades 7-8 is so much broader than that of the primary grades, the teachers of these grades, no doubt, felt the need for this type of help to a greater degree than did the primary teachers.

Supervisory assistance had a 3.4 mean for the first group and a 3.2 for the second. The difference is not great and is explained, probably, by the heavy concentration
of lay teachers in the primary grades (see Table 6) who have had fewer years of experience (see Table 4).

Direct use of materials had the high mean score of 4.1 for both groups.

Other activities had a 3.4 mean for the first group and a 3.6 for the second. Of the three items under this categorization, the first two were rated about the same but the third was more important to the upper grade teachers. This probably accounts for the higher score (see Table 43).

Table 45 gives the mean scores of the four items covered in Questions 14, 15, 16, and 17.

The first item, voluntary participation, had a 3.6 mean for the first group and a 3.9 for the second. Since the second group had four times as many religious teachers as lay, (see Table 6) this shows that the religious teachers are strongly in favor of this item.

Recognition of individual differences had a 4.0 by the primary teachers and a 2.2 by the upper grade teachers. A survey of these schools revealed that 47 per cent of them had some departmental teaching in the upper grades. Since there is more specialization among these teachers, the recognition of individual is probably not as important to them as it is to the primary teachers.

Recognition by school officials had a higher mean for the second group than the first--3.6 for the former and a
3.3 for the latter. Again the higher mean for the second group which has four times as many religious as lay teachers shows clearly that the religious teachers feel the need of formal recognition as much or perhaps more than the lay teachers.

TABLE 45

MEAN SCORES OF VOLUNTARY PARTICIPATION, RECOGNITION OF INDIVIDUAL DIFFERENCES, RECOGNITION BY SCHOOL OFFICIALS AND EVALUATION STUDIES IN THE LIGHT OF FUTURE IN-SERVICE EDUCATION PROGRAMS FOR ALL TEACHERS OF GRADES 1-3 AND ALL TEACHERS OF GRADES 7-8

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers Grades 1-3</th>
<th>Teachers Grades 7-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Voluntary Participation</td>
<td>3.614</td>
<td>3.958</td>
</tr>
<tr>
<td>b. Recognition of Individual Differences</td>
<td>4.050</td>
<td>2.295</td>
</tr>
<tr>
<td>c. Recognition by School Officials</td>
<td>3.398</td>
<td>3.658</td>
</tr>
<tr>
<td>d. Evaluation Studies</td>
<td>3.552</td>
<td>3.680</td>
</tr>
</tbody>
</table>

Evaluation studies had a 3.5 mean for the first group and a 3.6 for the second. There is not enough difference here to have any particular implications.
Table 46 gives the mean scores of the importance of curriculum change for all the two groups.

**TABLE 46**

**MEAN SCORES OF THE IMPORTANCE OF CURRICULUM CHANGE FOR ALL TEACHERS OF GRADES 1-3 AND ALL TEACHERS OF GRADES 7-8**

<table>
<thead>
<tr>
<th>Items</th>
<th>Teachers Grades 1-3</th>
<th>Teachers Grades 7-8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 343</td>
<td>N = 180</td>
</tr>
<tr>
<td>a. Language Arts</td>
<td>2.958</td>
<td>3.240</td>
</tr>
<tr>
<td>b. Social Studies</td>
<td>2.784</td>
<td>3.173</td>
</tr>
<tr>
<td>c. Music</td>
<td>3.296</td>
<td>3.056</td>
</tr>
<tr>
<td>d. Art</td>
<td>3.067</td>
<td>3.255</td>
</tr>
<tr>
<td>e. Science</td>
<td>3.199</td>
<td>3.394</td>
</tr>
<tr>
<td>f. Religion</td>
<td>3.478</td>
<td>3.687</td>
</tr>
</tbody>
</table>

Language arts had a 2.9 mean for the first group and a 3.2 for the second group. Social studies had a 2.7 mean for the first group and a 3.1 for the second. This difference is probably due to the fact that the changes proposed in these two areas by national study groups usually begin at the high school level and work down to the primary grades. Therefore, the primary teachers are not as conscious of the proposed changes as the upper grade teachers.
Music had a 3.2 mean for the primary grade teachers and a 3.0 for the upper grade teachers. Art was exactly oppositely rated with a 3.0 for the first group and a 3.2 for the second. The teachers at both levels were quite vocal in expressing their views on these two subjects.

Selected comment of a lay teacher

"Although I like the Ward Method of music and feel that the lesson plans are excellent, I would like to see a change in the lyrics. Many of the words used in the songs are not geared to a child's world. Now with the change in Church music, it might be wise to drop the Latin selections."

Selected comment of a lay teacher

"In art and music, I feel that there should be special teachers. I see much talent in the schools that needs the type of training that only a specially trained teacher can give."

Religion had a 3.4 mean for the first group and a 3.6 for the second. This has been an area in which all groups seem to indicate the strongest desire for change.

Selected comment of a lay teacher.

"Religion needs to be brought up to date with the proclamations of the Church Council. The teaching of re-
ligion needs a variety of methods, and not just lecture and question-and-answer periods.*

Summary

The hypothesis that there would be no difference in the reaction of primary teachers and upper grade teachers to the in-service education program was not verified. Only two items out of a possible 33 categorized under Questions 8 through 18 received the same rating by the two groups. This implies that no longer can the planning of in-service education programs disregard the fact that these two groups have distinct needs and problems.

Table 47 shows the number and percentage of principals and teachers responding to open question 19.

<table>
<thead>
<tr>
<th>SUBGROUPS</th>
<th>Frequency Observed</th>
<th>Percentage Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-teaching Principals</td>
<td>11</td>
<td>38.0</td>
</tr>
<tr>
<td>N = 29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Principals</td>
<td>18</td>
<td>47.3</td>
</tr>
<tr>
<td>N = 38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religious Teachers</td>
<td>127</td>
<td>36.0</td>
</tr>
<tr>
<td>N = 351</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lay Teachers</td>
<td>131</td>
<td>32.2</td>
</tr>
<tr>
<td>N = 407</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>287</td>
<td>34.8</td>
</tr>
</tbody>
</table>
Selected comments from responses to Question 19 have been used throughout this chapter. Two more will be included to indicate that the teachers were quite open in their requests for more teacher involvement in curriculum changes and for provision in the curriculum for the needs of schools in depressed areas.

Selected comment of a religious teacher

"Teachers should be consulted about curriculum changes. Meetings or workshops should be held and changes discussed by those who do the teaching of the subjects. Suggestions by this group should be considered before significant changes are made."

Selected comment of a religious teacher

"I feel that the curriculum should be suited to the area in which the school is located. Our children (from a depressed area) can hardly be expected to know and use the subject matter that other children may find quite easy. They do not have the encouragement and/or help from their homes that other children have. The difference between the schools in our system is unbelievable unless one has taught in both types of schools as I have."
CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

In 1958, a new arithmetic program was introduced into the first grades of all the parochial elementary schools in the Archdiocese of Louisville, Kentucky. Each year, the program was moved into the next higher grade. This pattern was followed each year with the exception of the third year when the new program was moved into the third and fourth grades in the same year. In the fall of 1964, the program was introduced into the eighth grade.

An in-service education program had been designed to accompany the curriculum change in the area of arithmetic with both principals and teachers participating in the program. The purpose of this study was (1) to investigate staff perception of the effectiveness of the different types of in-service education activities which accompanied the change in the arithmetic program; (2) to discover the types of in-service activities these staff members would recommend for future in-service education programs to accompany other major curriculum changes in the elementary school; and (3) to inquire into the staffs' views with re-

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gard to the importance of future curriculum innovations in other subject matter areas.

A questionnaire was distributed to 889 principals and teachers in 70 parochial elementary schools in Louisville and its surrounding suburban areas. The instrument contained four parts. The first part, Questions 1-7, dealt with personal data. The second part, Questions 8-12, centered around the evaluation of the actual in-service activities categorized under these headings: (1) workshops and meetings; (2) formal classes; (3) supervisory assistance; (4) direct use of materials; (5) other activities. The third part of the questionnaire, Questions 13-17, was concerned with these activities in the light of future in-service programs as well as such items as voluntary participation, recognition of individual differences, recognition by school officials, and follow-up evaluation studies. The last part, Questions 18-19 dealt with curriculum change in selected subject-matter areas and in-service activities which might accompany these changes.

Conclusions

The first hypothesis was that there would be no difference in the responses of lay and religious teachers as they evaluated the in-service program carried on for the last seven years, the use of such programs in the light of future curriculum changes, and the importance of curriculum changes in selected subject-matter areas.
Of the eighteen in-service activities listed under the five categories in Questions 8-12, sixteen were rated higher by the lay teachers than by the religious teachers. The only two items rated higher by the religious teachers were professional reading and the meetings and conferences sponsored by professional organizations. In rating these same activities in the light of future in-service programs planned to accompany other curriculum innovations, each item was rated higher by the lay teachers than by the religious teachers.

In rating the importance of voluntary participation in in-service education, recognition of individual differences, in-service education, recognition of individual differences, recognition by school officials, and follow-up evaluation studies, there were no significant differences in the mean scores of the two groups, but the ratings by the lay teachers were slightly higher for each item except for recognition of individual differences. This item received the rating of "very important" by both groups. The only other item to receive this high rating by both groups was the actual use of textbooks, teachers' manuals, and workbooks. Concerning the six subject-matter areas listed in Question 18, there were some differences in the responses of the two groups, but neither group considered these changes to be very important or extremely important.

In studying Tables 3 and 4, one sees clearly that the
lay teachers are less well-prepared professionally and have had less experience than the religious teachers. This would lead to the conclusion that the in-service program used during the last seven years seems to have been geared to supplying the deficiencies in formal education of the teachers rather than to enriching the background of the professionally prepared and experienced teachers. An in-service program should be prepared to meet the needs of all teachers so that each one is gaining from the experiences offered. Of the ten subgroups studied, nine of them gave the item, recognition of individual differences, the high rating of "very important." This was the high-rating given to any one item in the entire questionnaire.

The difference in the preparation of the two groups must be kept in mind in planning future in-service programs. This does not mean separate activities for the two groups; on the contrary, it means planning so that the qualifications of a teacher, lay or religious, may be enhanced by in-service education.

The similarity of the responses of the two groups in rating changes in the subject matter areas listed indicates a satisfaction with the present curriculum. In this age of the explosion of knowledge and the changes taking place in curricula, this implies a lack of knowledge concerning the work being done by national groups in various fields of
learning and a need for keeping faculty members alert to current trends.

The second hypothesis was that there would be no difference in the responses of the non-teaching principals and the teaching principals to the questionnaire used in this study.

Of the 18 items listed under the five categories of in-service activities in Questions 8-12, nine were rated higher by the non-teaching principals and nine higher by the teaching principals. Upon an examination of these items, there appeared to be a proclivity of the non-teaching principals to rate those items higher which are more administratively oriented such as the three items listed under supervisory assistance, actual use of textbooks, and standardized tests.

In the light of future in-service education programs, the teaching principals rated all five categories of activities higher than did the non-teaching principals. The rating accorded "voluntary participation" was significantly higher for the teaching principals than for the non-teaching principals, but only slightly higher for recognition by school officials and follow-up evaluation studies.

Concerning the changes in subject matter areas, the teaching principals rated all items higher than the non-teaching principals except music and art. Again, it is
evident that neither group considered such changes very important or extremely important.

These data show clearly that there is a difference in the way the non-teaching and the teaching principals responded to the items included in the questionnaire. This indicates the importance of planning in-service programs by both administrators and teachers. The time, money, and resources of a school system must be used to serve the entire system as effectively as possible and the over-all view of the administrator is necessary. However, in-service education has for its chief aim the changing of the individual teacher so that classroom instruction will improve. Thus, a good in-service program must be cooperatively planned by teachers and administrators.

The third hypothesis was that there would be no difference between the way the younger and the older teachers answered the questionnaire.

In only three items of the 18 in Questions 8-12 were the responses approximately the same. For professional talks at faculty meetings, and meetings and conferences sponsored by professional organizations, both groups gave about the same low rating. They both also gave a little higher rating to the use of films.

The items which were scored noticeably higher by the younger teachers were actual use of textbooks, supervisory visits, visits to other teachers' classrooms and shared
samples of teacher-prepared materials. These items were valued by younger teachers, no doubt, because many of these teachers are not professionally prepared as well as the older teachers and feel the need of this type of concrete help.

In evaluating the in-service activities in the light of future in-service education programs, the groups, while not in complete agreement, rated the items quite similarly.

In rating the questions concerning voluntary participation, recognition of individual differences, recognition by school officials and follow-up evaluation studies, the younger teachers gave a slightly higher rating than the older teachers. However, of the four items, only recognition of individual differences received the high rating of "very important."

In rating the importance of curriculum changes, neither group rated them above "of some importance" which indicates an average satisfaction with the present curriculum.

The third hypothesis was not confirmed, and there was enough difference in the responses of these two groups to warrant a recognition of the differences by those planning future in-service programs. It seems that the mediocre satisfaction of these two groups as shown in their responses, does not indicate a successful program. A good in-service program must evoke a high sense of accomplishment
by those participating or change is not likely to occur. Efforts must be made to produce activities that will serve to inspire teachers to respond more precisely to evaluation techniques.

The fourth hypothesis was that there would be no difference in the way the teachers who had participated in the in-service program for one to three years answered the questionnaire and the way in which the teachers who had participated in the program for four to seven years responded.

While the mean scores for these two groups were not exactly the same, there was a strong similarity in their responses to 32 out of 33 items covered by Questions 8-18. The only item on which there was wide disagreement was the importance of changing the religion program. Since many of the teachers with 1-3 years of participation were the younger teachers, it was interesting to note that they considered this item of "some importance" while the other groups considered it to be of "little importance."

While one cannot say that this hypothesis was confirmed in this study, there is strong indication that consideration of these two groups as having separate needs is not important in planning future in-service programs. However, the same mediocre satisfaction with the program is seen in the answers of these two groups and is another reason for more careful planning in the future.
The fifth hypothesis was that there would be no difference in the responses to the questionnaire as given by the primary and upper grade teachers' evaluations.

There was a definite difference in the way the two groups responded to the questionnaire. One group rated about half of the items higher than the other. The two areas in which the greatest differences were found were formal classes and recognition of individual differences. In the light of future in-service education programs, the upper grade teachers thought that formal classes were very important while the primary teachers rated them as only of some importance. Since there is so much more subject matter to be covered in the upper grades than in the primary grades, the reason for this difference is apparent. The other item was the recognition of individual differences. The primary teachers rated it as very important while the upper grade teachers rated it as of little importance. One reason for this difference could be that there is more departmentalization in the upper grades and the specialization in the training of these teachers seems to explain their lack of concern for this recognition.

There is clear evidence that, while the differences in rating the other items were not as great, these two groups must be considered separately in planning in-service education. In reply to the question concerning curriculum changes in certain subject matter areas, the mean scores
for the upper grade teachers were higher in all areas except one—music. However, no rating was above "some importance." In the light of what is expected to happen in elementary school curriculum in the next ten years, it seems that there is a great need to concentrate in-service education in this system on impending curriculum reforms.

Recommendations

For the Superintendent:

1. That the superintendent organize the school system at three levels for the improvement of instruction. The first level of organization would be at the school level. Representatives from the various schools would form curriculum committees at area levels who, in turn, would send members to a curriculum council operating at the system level.

2. That the superintendent provide a plan whereby curriculum work would be part of the regular workload of the professional staff.

3. That a plan be devised in the central office for concrete ways of showing recognition and appreciation for meritorious participation in in-service education programs.

4. That encouragement and help in structuring action research be given to teachers and that means for making the results of such research available to teachers in the system be inaugurated.
For the Supervisors:

1. Since the goals of supervision have changed markedly in recent years, the supervisors should have their role in the school system clarified so that the teachers will have a clear understanding of the working relationship that is expected to exist between them and their supervisors.

2. That the supervisors should provide conditions whereby the initiation of in-service activities comes from the teachers. Thus supervision will develop leadership in the teachers so that there will be continuous professional growth as they test out new knowledge on their own terms.

3. That supervisors plan a program of intraschool visitation with teachers on all levels.

For the Principals:

1. That principals consider the improvement of instruction as their most important responsibility.

2. That principals recognize in-service education activities as an integral part of the school program with respect to scheduling and teaching loads.

3. That principals establish a proper climate in which opportunities and encouragement for experimenting with new ideas exist.

4. That principals lead their teachers to study the structure of curriculum areas so that understanding the principles underlying various fields of knowledge, they can
be prepared to exercise judgment in the selection of content to be used.

5. That principals make available professional consultant help when needed.

For the Teachers:

1. That teachers recognize and assume their professional responsibility to engage in a continuing search for new knowledge and skills.

2. That teachers engage in action research in order to evaluate old habits of teaching and to test new practices.

3. Since the improvement of the instructional program requires the integration of many competencies seldom found in one person, teachers should learn to participate in group situations where they can share their own problems and situations with others.
A STUDY OF IN-SERVICE EDUCATION IN THE LOUISVILLE PAROCHIAL ELEMENTARY SCHOOLS

Personal Data

1. Select one of these categories which most accurately identifies you. Circle the appropriate number.

   1. Religious Non-Teaching Principal
   2. Religious Teaching Principal
   3. Religious Teacher
   4. Lay Teacher

2. Circle the number which indicates your sex.

   1. Male             2. Female

3. How old are you? Circle one number corresponding to the range in which your age falls.

   1. Under 20 years of age   4. 40-49 years of age
   2. 20-29 years of age      5. 50 years or more
   3. 30-39 years of age

4. How many years of teaching experience have you had? Circle the correct number.

   1. 3 years or less        4. 15 to 19 years
   2. 4 to 9 years          5. 20 to 24 years
   3. 10 to 14 years        6. 25 years or more

5. Since 1958, which years have you taught in the schools of the Archdiocese of Louisville? Circle the correct numbers.


6. How much formal education have you had? Circle one number which indicates the highest degree or level of education.

   1. Less than a Bachelor's Degree
Since 1958, there has been a continuous, carefully-planned program of in-service education to assist our teachers and principals in acquiring an adequate background and understanding of mathematics. The purpose of this part of the questionnaire is to have you express your feelings about these in-service activities. The knowledge gained from this study will be used to provide better in-service education programs for our schools in the future.

Using the following code, circle the number opposite each item to indicate the degree of importance that each one holds for you. Circle only one number for each item.

1. of no importance
2. of little importance
3. of some importance
4. very important
5. extremely important
8. Workshops and Meetings

a. in-service workshops (2-5 days) 1 2 3 4 5
b. periodic meetings for groups of teachers according to grade(s) taught (primary, intermediate, upper.) 1 2 3 4 5
c. professional talks at faculty meetings 1 2 3 4 5
d. talks at system-wide teachers' meetings 1 2 3 4 5
e. meetings and conferences sponsored by professional organizations 1 2 3 4 5

9. Formal Classes

a. college course in the teaching of the new mathematics 1 2 3 4 5
b. series of classes covering subject matter of one grade 1 2 3 4 5

10. Supervisory Assistance

a. classroom observation by supervisor followed by individual conference 1 2 3 4 5
b. demonstration classes 1 2 3 4 5
c. your visits to other teachers' classes 1 2 3 4 5

11. Direct Use of Materials

a. actual use of textbooks, teacher's manuals, and workbooks 1 2 3 4 5
b. shared samples of teacher-prepared materials to supplement textbook material 1 2 3 4 5
c. standardized tests provided by publishing company 1 2 3 4 5
d. test administered through School Board Office 1 2 3 4 5
e. films prepared by the authors of the mathematics program 1 2 3 4 5

12. Other Activities

a. professional reading 1 2 3 4 5
b. Discussions with other teachers 1 2 3 4 5
c. conducting classes in modern mathematics for interested students outside of school time (after school, on Saturdays, etc.) 1 2 3 4 5

Future In-Service Education

13. In the light of future in-service education programs, how important do you consider each of the five categories of in-service activities listed in this questionnaire?

a. Workshops and Meetings 1 2 3 4 5
b. Formal Classes 1 2 3 4 5
c. Supervisory Assistance 1 2 3 4 5
d. Direct Use of Materials 1 2 3 4 5
e. Other Activities (professional reading, discussion with other teachers, conducting classes with interested students outside of school time, etc.) 1 2 3 4 5

14. How important is voluntary participation in in-service education activities? 1 2 3 4 5
15. How important is the recognition of individual differences among teachers in planning future in-service education programs (beginning teachers, teachers new to the system, etc.?)

16. To what degree do you think it is important for school officials to give recognition, verbal or material, to teachers and principals who have been involved in in-service activities?

17. How important to the planning of future in-service education do you consider follow-up evaluation studies such as this?

Curriculum Change

18. How important to you consider curriculum changes in the following areas at this time?

   a. language arts
   b. social studies
   c. music
   d. art
   e. science
   f. religion

19. What additional ideas do you have about future in-service activities which might be undertaken to further major curriculum changes in our schools? (Use the space below for your responses. Use back of this sheet, if necessary.)
February 19, 1965

Dear Principal:

Our former supervisor, Sister Frances Loretto, S.C.N., is presently working on a dissertation for her doctoral degree. The enclosed letter from Sister will explain the objectives of the questionnaires for the principals and teachers of your school.

This project has the complete approval of the Catholic School Board Office as well as mine. It is most important that you and your teachers answer all the questions as objectively as possible. All information put on these forms will be kept strictly confidential and neither the teachers' names nor the name of the school will be used in the dissertation nor by this office.

As well as helping Sister, this study will be of invaluable assistance to this office for an evaluation of our mathematics program. The code number used on the envelope will help us to know which schools have returned their questionnaires. As soon as your reports have been received in this office, your school's name will be checked off the list and the reports will be turned over to Sister without any identification.

In order for the information to be of real value to me, we ask that the questionnaire be returned by March 1, 1965. As you no doubt know, we are national leaders in implementing a major curriculum change in mathematics in the elementary schools, and an early evaluation is most important to our school system. Your help in making this study a success will be greatly appreciated.

With kindest regards and all good wishes, I am

Sincerely yours,

Rt. Rev. Msgr. F. N. Pitt
Executive Secretary
February 19, 1965

Dear Principals and Teachers:

As a part of the requirement for the Ph. D. degree at The Ohio State University, Columbus, Ohio, I am making a study of the in-service education program which has been a part of the new program in mathematics in our schools from 1958 through the current year.

I have prepared a questionnaire to be used in this study which can be answered in ten or fifteen minutes. This questionnaire is designed to secure your reaction to these in-service activities. The information gained from this study will be used to help plan future programs in our schools. Very few school systems have introduced a new program in mathematics in the systematic way in which our system has. Consequently, it is hoped that this study will be of help to many other school systems as they plan for a major curriculum change in mathematics.

Since you are asked not to sign your names, your answers will remain anonymous. My aim is to get a picture of the thinking of the principals and teachers as a total group.

I am most grateful for your kind cooperation.

Sincerely yours,

Sister Frances Loretto, S.C.N.

Sister Frances Loretto, S.C.N.
INSTRUCTIONS TO PRINCIPAL

1. Please read both letters to the entire faculty.

2. Please have each teacher return his or her questionnaire to you in a sealed envelope. (Envelopes enclosed.)

3. Please return all the questionnaires to the Catholic School Board in the large, stamped envelope enclosed with this material.
BIBLIOGRAPHY

Books


Judd, Cornelius D. *The Summer School As an Agency for Training of Teachers in the United States.* Nashville, Tennessee: George Peabody College for Teachers, 1921.


Articles


Knisely, V.V. "Inevitable Obsolescence," Theory into Practice, III (February, 1964), pp. 30-34.


Unpublished Materials


