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Organizational factors which contribute to the development of successful team teaching programs

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Organizational factors which contribute to the development
of successful team teaching programs

by

Joseph Eugene Millard

A Dissertation Submitted to the
Graduate Faculty in Partial Fulfillment of
The Requirements for the Degree of
DOCTOR OF PHILOSOPHY

Major Subject: Educational Administration

Approved:

Signature was redacted for privacy.

In Charge of Major Work

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Organizational factors which contribute to the development
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The purpose of this study was to determine the importance various organizational factors have had in the development of successful team teaching programs. The five elements examined in this study were: 1) method of teacher assignment, 2) organizational team design, 3) use of flexible student grouping, 4) use of flexible time schedules, and 5) use of paraprofessional assistance.

Procedures

One hundred and twelve team teaching programs were selected from the literature as having exemplary team teaching programs. A questionnaire was mailed to these schools to gather information about the five elements under investigation. Only those school programs reporting a continuous program for three years or more were used in the sample of successful team teaching programs. Eighty school administrators returned the questionnaire. Twenty-four of the team teaching programs had been discontinued and three questionnaires were not usable. The remaining 53 programs contributed 188 individual teams which were analyzed according to the use of the five organizational

factors. The importance the team administrators believed the factors to have in the development of the program was also examined.

Conclusions

It was found that an association did exist between the five factors under investigation and their use at various grade levels. There was also associations between the use of flexible scheduling and the type of organizational team design and method of teacher assignment. Other conclusions were:

1) Teacher assignment methods are of some importance and should receive considerable attention when developing a voluntary hierarchic elementary team.

2) Flexible grouping of students is very important and must be considered when developing a team teaching program.

3) Small group instruction is the most important component of flexible student grouping and should be considered when developing a team program.

4) Large group instruction and independent study are of some importance in developing a successful team program.

5) The use of traditional size classes is another dimension of flexible grouping in many successful team teaching programs.

6) Flexible scheduling may not be as important for the development of successful senior high team teaching programs as was once thought. It does appear to be important at both

the elementary and junior high levels.

7) Organizational team designs are of some importance in the development of successful team programs. The method of teacher assignment and the grade level of the team must be considered when developing the team design. Arbitrary assignment procedures appear to be used with synergetic senior high teams and voluntary assignment practices to be used with hierarchic elementary teams. Junior high teams are more likely to develop their own respective team organizational designs using their own method of teacher assignment.

8) While it may be desirable to have paraprofessionals in the development of a team program their use does not appear to be of great importance in the development of a successful program.

Recommendations

Several recommendations are made to those charged with the responsibility of developing a team teaching program. The recommendations include: 1) use flexible student grouping, 2) educate team teachers to use the various instructional modes especially the use of small group instruction, 3) provide flexible schedules for junior high and elementary teams, 4) consider the grade level to be team taught and the method of teacher assignment when developing the organizational team design, and 5) provide adequate planning time prior to starting a team program.

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CHAPTER I. INTRODUCTION

Much has been written about team teaching in the past ten years. Although the team teaching concept is not new to education, the term "team teaching" became popular only in the 1960s. The first part of the Twentieth Century witnessed the development of the Platoon School, the Winnetka Plan, and the Dalton Plan which contained some important characteristics of team teaching (84, p. 3).

It was during the late 1950s that the present term was introduced into educational literature. In 1956 the National Association of Secondary School Principals (NASSP), aided by the Ford Foundation, began an investigation into effective means of staff utilization. Team teaching was one of the popular experiments in the staff utilization projects directed by Dr. J. Lloyd Trump (29, p. 12; 84, p. 4).

In 1957 the Harvard School and University Program for Research and Development (SUPRAD) sponsored a team teaching experiment at Franklin Elementary School in Lexington, Massachusetts. This five-year project was conceived by Francis Keppel and Judson T. Shaplin, and directed by Robert H. Anderson (29, p. 14; 84, p. 4). Team teaching had started at both the elementary and secondary levels.

Team teaching experienced a rapid growth. Wiegerson (107) reported in a 1965 issue of Education that fifty pilot studies had been reported as early as 1958, and that

the number of team teaching studies had increased to over 3000 by 1953. Team teaching was no longer considered experimental but had become an accepted practice in many schools (29, p. 13; 60, p. 350; 92, p. 80).

Need for the Study

The fact that team teaching programs have become accepted organizational patterns for schools has presented a problem for the school administrator. Specifically, he has had to answer the following question: What organizational factors affect the development of a team teaching program?

The literature suggests many important factors in developing a team teaching program. Some of these factors are:

- 1) Teacher selection and assignment
- 2) Orientation programs
- 3) Scheduling for large group instruction, small group instruction, and independent study
- 4) Adequate planning prior to starting the program
- 5) Flexible scheduling of time
- 6) Parental cooperation
- 7) Paraprofessional help
- 8) Organizational design
- 9) Physical space
- 10) Instructional equipment
- 11) Personality qualities of team members.

It would seem helpful to know the organizational elements of successful team teaching programs. Often, when a team teaching program is developed several teachers are selected and asked to perform as a team without particular regard to the factors listed above. Knowing what organizational factors are used by successful team teaching programs would hopefully improve upon this "hit-and-miss" approach.

Borg (15, p. 1) in a study of human interaction variables in successful and unsuccessful teacher teams has stated:

Because team teaching has been accepted rather uncritically by a number of schools and has already been abandoned by many of the schools that adopted it two or three years ago, investigation of the variables leading to success or failure of teacher teams is badly needed.

Shaplin and Olds (88, p. 4) has observed that research reports have been scarce and that many publications have been, "a curious mixture of hortatory confidence and unsupported optimism." In the same book, (88, p. 323), it was reported that little research had been done which provided information about implementing a team teaching program.

In the 1969 publication of the Encyclopedia of Educational Research, Heathers (46) states that research has not investigated the effects of flexible scheduling, flexible grouping, staff specialization, the use of teacher aides, team planning, or team organization.

The above observations confirm the great need for investigating the elements which contribute to the success of team teaching programs. Although team teaching is an accepted procedure for organizing teachers there remains the need to identify those organizational factors which contribute to successful team teaching programs.

Purpose of the Study

Knowledge of organizational factors of successful team programs would be helpful in several ways. Such knowledge would be useful in preparing teachers to perform in a teaming situation. It would be helpful to teachers and school administrators who are responsible for developing team teaching programs. Identification of these components would provide valuable information in developing team teaching models. Guides for organizing a team teaching program would be better developed if the organizational factors of the successful team teaching programs were known.

The Problem

From the outset, the aim of this study was to identify organizational factors of successful team teaching programs. Selected team teaching organizational factors were investigated. In particular, this study sought answers to the following questions:

- 1) Is the method of teacher assignment an important organizational element in the development of a successful team teaching program?
- 2) Is flexible grouping of students an important factor in the development of a successful team teaching program?
- 3) Is flexible class scheduling an important factor in the development of a successful team teaching program?
- 4) Is the organizational design of the team an important factor in the development of a successful team teaching program?
- 5) Is the use of paraprofessionals an important factor in the development of a successful team teaching program?

Hypotheses

The following null hypotheses were tested in the study.

- 1) There is no association between grade levels using teams and the method of teacher assignment in successful team teaching programs.
- 2) There is no association between grade levels using teams and the type of organizational team design in successful team teaching programs.
- 3) There is no association between grade levels using teams and the use of flexible student grouping, flexible

scheduling, and paraprofessionals in successful team teaching programs.

4) There is no association between the type of organizational team design and the method of team teacher assignment in successful team teaching programs.

5) There is no association between the type of organizational team design and the use of flexible student grouping, flexible scheduling, and paraprofessionals in successful team teaching programs.

6) There is no association between the method of teacher assignment to teams and the use of flexible student grouping, flexible scheduling, and paraprofessionals in successful team teaching programs.

Definition of Terms

For the purpose of this study the following operational definitions were used.

Team Teaching was said to exist when two or more professional teachers, working together with or without paraprofessional help, assumed joint responsibility for all or part of the instruction of a common group of students.

Professional Teachers were those who held approved state teaching certificates, and were employed to instruct students.

Paraprofessionals were persons other than professional teachers or school administrators. A paraprofessional

could be a teacher's aide, a student teacher, or a volunteer mother who was employed to assist the professional teacher.

Successful Team Teaching Programs were those team teaching programs which were reported in the educational literature as outstanding or exemplary models. In addition to being cited in the educational literature, the programs had to have been in continuous operation for at least three years to be considered "successful."

Organizational Design of the Team was either of the "hierarchical" or "synergetic" type.

Hierarchical type teams were those organized with a division of rank among the teachers of the team. These teams had an official team leader (29, p. 13).

Synergetic type teams were when the teachers cooperated as professional equals without a permanently designated team leader. These teams are sometimes called "cooperative" or "associative" teams (29, pp. 13-14).

Large Group Instruction was defined as a situation in which two or more traditionally-sized classes met as a single group.

Small Group Instruction was considered to exist when two to fifteen students met as a single group.

Flexible Student Grouping was defined as an instructional program in which students met in large groups, small groups, or traditional sized classes, and worked independently at

various times during their normal schedule.

Flexible Class Scheduling was considered to exist when class periods varied as to length of meeting time during the day or week.

Sources of Data

In order to identify organizational factors of successful team teaching programs it was necessary to investigate schools which had successful programs. An investigation of the team teaching literature written by Trump and Baynham, Beggs, Davis, Bunyan, Shaplin, Polos, and Chamberlin revealed several schools which were considered exemplary models for team teaching programs. The investigated schools were selected from among those mentioned in that literature. The selected schools had had a continuous program for at least three years at the time this study was begun.

A total of 112 schools sponsoring team teaching programs were selected from the research reported by these investigators. Sixty-five senior high schools, 25 junior high schools, and 22 elementary schools were identified as having successful programs. Each school had at least one teaching team which had been in continuous operation for at least three years.

Because these schools were located throughout the United States and in Canada, a mailed questionnaire was used to gather information. Interviews probably would have provided

more data, but the cost of conducting them was deemed prohibitive. The data for this study were obtained from the responses to the questionnaire, which was mailed to the model schools. The questionnaire was completed by the person responsible for the organization and supervision of the team teaching programs. In most cases this person was the school principal.

Delimitation of the Study

1. This study was limited to grades kindergarten through 12. The grades were divided into three groups. Elementary schools included grades kindergarten through sixth grade. Junior high schools involved grades seven, eight, and nine. Senior high schools included the tenth, eleventh, and twelfth grades. College teams were not included in this study because of the wide variety of organizational structures found at the college level.

2. Only schools considered by Trump and Baynham, Beggs, Davis, Bunyan, Shaplin, Polos, or Chamberlin as having exemplary or outstanding team teaching programs were selected for the study. And, only those schools which had a continuous history of team teaching for three years or more were investigated as successful team teaching programs.

3. Only selected organizational factors which were specified in educational literature as important for the success of team teaching were investigated. These selected

elements were: a) the method of assignment of team teachers, b) flexible student grouping, c) flexible class scheduling, d) the organizational design of the team, and e) use of paraprofessional help.

Organization of the Study

This study has been organized into five chapters. The background of team teaching and the need for the study are presented in Chapter I. The first chapter is divided into an introduction and sections entitled "Need for the Study", "Purpose of the Study", "The Problem", "Definition of Terms", "Delimitation of the Study", "Sources of Data", and "Organization of the Study".

The related literature is reviewed in Chapter II. The review includes literature discussing components considered important for team teaching, research findings, and organizational patterns for team teaching. Special attention has been given to the five factors investigated in this study.

The method and procedure employed in the construction, administration, and analysis of the survey are described in Chapter III. The development of the questionnaire is discussed in this chapter.

The findings of the survey are presented in the fourth chapter. The numerical and statistical relationships are also presented in Chapter IV.

Finally the summary, conclusions, and recommendations are discussed in Chapter V.

CHAPTER II. REVIEW OF LITERATURE

This chapter is divided into eight sections. They are:

- 1) Introduction to Team Teaching Literature, 2) Organizational Factors Considered Important for Team Teaching, 3) The Assignment of Teachers to Team Teaching, 4) The Use of Flexible Grouping of Students in Team Teaching Programs, 5) The Use of Flexible Scheduling in Team Teaching Programs, 6) The Organizational Designs of Team Teaching Programs, 7) The Use of Paraprofessional Personnel in Team Teaching Programs, and 8) Summary.

Before discussing the organizational factors of team teaching as reviewed in the literature, it seems reasonable to report on some of the general articles which discuss teaching teams.

Introduction to Team Teaching Literature

Although the term "team teaching" was first introduced into educational literature during the late 1950s, several earlier educational programs contained characteristics of team teaching. Harrison (45, p. 28) has written that team teaching was closely related to earlier educational programs. He states:

Earlier attempts with tutorial systems, large lecture hall classes, and teacher aides were designed to improve the educational program of the day. Resemblances exist between certain elements of team teaching and the Lancastrian

System, the Winnetka Plan, the Dalton Laboratory Plan, and Hosic's Cooperative Group Plan.

These earlier attempts at team teaching placed more emphasis on the need to individualize instruction than the need for teachers to cooperate. Hosic's Cooperative Group Plan resembled the present-day team teaching more than any of the other above-mentioned programs. Knezevich (60, p. 403) states that the 1930 plan was a forerunner of the team teaching approach to instruction.

The NASSP staff utilization projects directed by Dr. J. Lloyd Trump and the SUPRAD sponsored team teaching experiment at Lexington, Massachusetts were the beginning of the "modern" teaching team programs.

During the past decade, as team teaching became an accepted practice in many schools, articles on the subject proliferated. Reber (86), for example, surveyed 17 NASSP staff utilization projects which were publicized during the late 1950s. He found team teaching to be a popular staff utilization approach.

The popularity of team teaching is impressive. But because of the vague definitions used for teaching teams some of the literature may misrepresent the actual use of teaming. Two such articles purporting to show a great use of teaching teams are Cawelti's study of the North Central Association Secondary Schools and a National Education Association (NEA) study completed in 1966.

Cawelti (22) reported in a 1967 national survey that 41 percent of the high schools had adopted team teaching as a form of instructional organization. The NEA study (75) reported in 1966 that 50 percent of the large school districts (enrollment of 25,000 or more) were using some form of team teaching at the elementary level. It also reported that 65 percent of the secondary schools were using a form of team teaching.

One of the first books entirely devoted to the subject of teaching teams was, Team Teaching, by Shaplin and Olds (88). These writers have edited a book which gives a detailed explanation of the theory and practice of team teaching. Their work constituted the beginning of a theoretical foundation upon which further research, evaluation, and development of team teaching could be built. The authors drew heavily upon the small-group research conducted by social psychologists. They pointed out relationships between team teaching and current theory in sociology, administration, and personnel management.

Brownell and Taylor (18) approached team teaching theory from an organizational viewpoint. They discussed some of the assumptions that appeared to provide the theoretical foundation for many current school practices. They also demonstrated how these assumptions relate to the hypothetical advantages of team teaching. In their article, they developed

definitions and models of team teaching programs.

Additional descriptions of team teaching have been presented in Anderson's book Teaching in a World of Change (6) and in Beggs' book, Team Teaching (10). Peterson (83) has written a book describing the "vertical" approach to team teaching. A 1965 special issue of The National Elementary Principal gave detailed accounts of team teaching programs (31). The 1958, '59, '60, '61, and '62 January issues of the NASSP Bulletin discussed in detail various team teaching projects (73).

Extensive bibliographies on team teaching can be found in the above publications, in Davis (28), Bunyan (19), Wiegerson (106), and in the Tomorrow's Educational System Today publication on team teaching (98).

There appears conflicting evidence that team teaching is a more effective method of teaching. Johnson et al. (56) found that one grade level of team-taught students showed higher achievements while another grade level of team-taught students gained less when both were compared with control groups. A more recent study by Georgiades and Bjeilka (40) found that team-taught students achieved more effectively than nonteam-taught students. It should be noted that in another study by the same authors (39) no significant differences between the team-taught students and traditionally-taught students were found.

There have been a number of studies which found more effective learning taking place under team teaching (37,40, 55,66,87,97). But an approximately equal number of research studies concluded that there were no significant differences in achievement between team-taught groups and nonteam-taught groups (9,13,24,39,49,51,94,105).

A study by Zweibelson, Bahnmuller, and Lyman (110) resulted in a finding that achievement did not vary among team-taught and nonteam-taught classes when the same teacher employed similar courses of study with both groups.

An experimental study by Lambert, Goodwin, and Wiersma (62) which randomly assigned pupils to either a team or a self-contained classroom found significant differences between team-taught and conventionally-taught classes with respect to classroom interaction patterns and student achievement. But an analysis of variance of mean scores showed no significant differences in student adjustment as measured by the California Test of Personality.

It would seem difficult to explain the rapid growth of team teaching in the absence of conclusive evidence that more effective learning takes place in team-taught groups. Cawelti (22, p. 72) spoke to this question when he gave this rationale for team teaching. He stated that team teaching is:

To improve the quality of instruction and individualize it, extend specialized teaching competencies of certain teachers, and provide a more flexible basis of organization.

Team teaching is not just two teachers working together, Cawelti reasoned. Rather, it is intended to provide a more flexible basis of organization. Heathers (46) stated that, "a great variety of organizational patterns are included under the umbrella label of team teaching", and he pointed out that many factors contributed to the growth of this organizational pattern.

The study was not intended to prove the merits of team teaching, rather, its major purpose was to identify those organizational elements peculiar to successful team teaching programs. Therefore, a major portion of the review of literature has been devoted to the organizational factors of team teaching. The organizational factors considered important for team teaching will now be discussed.

Organizational Factors Considered Important for Team Teaching

The organization of team teaching programs has received a great deal of attention in the educational literature. Many articles have described different ways of organizing teams (8,17,32,41,52,61,65,69,71,81,90). The description in the Instructor of the Banyan Elementary School in Newbury Park, California, is a notable example of this type of article (32).

Other examples in the literature dealing with team teaching organization are those articles which discuss how to develop and organize a team. Cunningham (26) and Drummond (34) have produced works of this type. Cunningham (26) has identified four team types and discussed the administrative problems involved in staff development. Drummond (34) has identified five team types and has explained characteristics of different types. Additional articles which discuss factors of team teaching organization were written by Anderson (5), Diesman (33), Georgiades and Bjeilka (39), Jenness (53), Powell and Lav (85), Sherman (89), and Zweibelson (110).

There are several books which explain ways to organize teaching team programs. In a book edited by Shaplin and Olds, Olds (80) attempted a team teaching taxonomy using four major categories: 1) structural requirements of specific situations, 2) autonomy, or span of control with existing structural requirements, 3) authority structure and degree of specialization, and 4) coordination. In the same book Anderson (4) discussed the organization and administration of team teaching. Peterson (83) has devoted an entire book to describing elements necessary for organizing a "vertical" team.

Beggs (10), Chamberlin (23), Polos (84), and Davis (29) have written books dealing with organizational components of

teaming. They did not concentrate on a particular type of team but discussed factors involved in several team teaching plans. Often, the above authors discussed particular school programs. They also theorized about specific factors which produce successful teaming. Hoover (50) and Trump and Miller (102) devoted chapters in their respective books suggesting organizational elements necessary for developing a team teaching program.

Nevertheless, there are a limited number of research studies which have attempted to investigate organizational factors of team teaching programs. Borg (16) found the organization and staffing of an effective team to be a major problem listed by principals. He found a number of organizational and instructional techniques used in conjunction with team teaching programs. Some of these organizational and instructional techniques utilized in team teaching programs were flexible scheduling, flexible class size, ability grouping, individualized instruction, teaching aides, and programmed instruction.

Graham (44) has provided a description of team teaching programs as conducted in 17 public secondary schools in Missouri. He found considerable use of large-group instruction, small-group instruction, independent study and regular size class groups. He did not find many schools using teacher aides or programmed instruction.

Meyer (70) in a doctoral thesis completed at Columbia University, attempted to determine the procedures utilized by secondary school administrators in introducing team teaching programs. His study was based on the practices of five senior high schools selected for research. The case-study approach was used to gather information. Meyer found school administrators shared many of their duties with members of the teams.

One study (58) evaluated elementary school facilities as they adapted to team teaching programs. Another study, by Harrison (45), was based on 48 junior high schools. It attempted to discover team teaching organizational plans used at the junior high school level.

Belleau (11) completed a study to examine team teaching practices and procedures in senior high schools in California during 1963-64. Bunyan (19) spent a year visiting team teaching programs in the eastern half of the United States and Canada. He investigated team teaching programs before developing the team program for St. Michael School, Calgary, Alberta, Canada. He has reported characteristics common to the programs.

The findings of these research reports are discussed later in this review of literature.

The above sources have revealed many important organizational factors in developing a team teaching program.

The most common factors are: teacher selection and assignment, flexible grouping of students, adequate planning prior to starting the program, flexible scheduling, parental cooperation, paraprofessional assistance, organizational design of the team, availability of physical space, instructional equipment used and personality qualities of team members.

These factors will now be discussed briefly. Following this discussion is a review of literature concerning the organizational elements investigated in this study. The factors investigated were: assignment of team teachers, flexible grouping of students, flexible class scheduling, organizational designs of team programs, and use of paraprofessional assistance with team teaching programs.

To give the reader an understanding of the many components which have been said to affect team teaching, several views of team teaching programs are presented below.

Davis (27) has suggested, "A successful team teaching program depends more on people than upon purse, more on faculties than upon facilities." He later stated in a book (29) the following five factors he believed necessary to start a team teaching program:

- 1) Provide meaningful faculty meetings and constructive planning sessions prior to starting the program.

- 2) Provide space and equipment for large group instruction, small group instruction, and independent study.
- 3) Provide a flexible schedule within which the team can operate.
- 4) Provide additional staff help for the teaching teams.
- 5) Keep parents and the community informed of the new program.

Chamberlin (23, p. 20) indicated the following eight areas as characteristics of a team teaching program:

- 1) Cooperative planning, instruction, and evaluation.
- 2) Extensive use of audio-visual and other instructional media.
- 3) Flexible scheduling, providing time for group planning and study.
- 4) Grouping--flexible arrangement providing for large group, small group, and individual instruction. Grouping is based on teacher purpose and allows children to work across grade lines.
- 5) Organization:

Hierarchy--the team may include a team leader, several specialists, regular teachers, and aides, both clerical and technical.

Cooperative--group of special or regular cooperating teachers.

Both organizational patterns call for cooperative coordination of team members activities.

- 6) Some curriculum alternations.
- 7) Staff--professional (teachers) and nonprofessional (aides).
- 8) Students assigned to teams, not a particular teacher.

Peterson (83) has listed these points as needed for effective team teaching: careful selection of team members, use of large group instruction, use of independent and research study for students, development of a suitable schedule, and use of audio-visual equipment.

Trump and Miller (102) have recommended the use of para-professional help, instructional devices, flexible scheduling, large group instruction, small group instruction, and independent study when developing a teaching team.

Belleau (11), using a descriptive survey comparing successful and unsuccessful team teaching programs in California, found several factors related to successful team teaching programs. Success of the team program was related to the establishment of prior goals, administrator and teacher support for the program, teacher preparation through visitation and summer workshops, use of overhead and opaque projectors, use of small groups, the provision of special facilities, and the attitudes of administrators,

teachers, and students.

Bunyan (19) also found characteristics common to successful team teaching programs. His findings were reported according to observations he made while visiting successful team teaching programs. This study is disappointing in that no comparisons are made between schools and no instrument is used to gather information except Bunyan's personal observations. He did make the following observations on what he believed were common characteristics to successful team teaching programs:

- 1) Charismatic leadership within the team;
- 2) A staff hired with a commitment to the team teaching project;
- 3) An inservice indoctrination and training program;
- 4) Office space provided for the teams;
- 5) Written team commitments to methods, philosophies, grouping of students, and use of technologies;
- 6) Team teaching literature available for the staff to read;
- 7) A staff that had travelled to observe other teams;
- 8) Individual team planning sessions held on a regular basis;
- 9) Total involvement of the staff rather than status as a special experimental group;
- 10) Some means of varying the size of the student groups;

- 11) Staff and students available to one another;
- 12) Teams who were encouraged to vary teaching and learning situations as well as the group sizes;
- 13) A staff that welcomed confusion that comes from group decision making;
- 14) A staff that was encouraged to use team members' respective teaching strengths; and
- 15) Secretarial help which was available to the team.

The organizational elements in team teaching programs will now be listed individually.

Teacher selection and assignment have been mentioned frequently as an important factor in developing a team teaching program (7,42,59,81).

The need for strong leadership has been mentioned as an important variable in developing a team teaching program by both Olson (82) and Anderson (7).

Flexible grouping of students is one of the most often mentioned factors regarding the success of a teaching team (29,83,96,100). Chamberlin (23, p. 61) has stated that flexibility seems to be one of the team teaching's greatest strengths and flexible student grouping was seen as a great advantage of team teaching organization.

Trump and Miller (102) have stated that the flexible schedule is a requirement for team teaching. Trump (100), Peterson (83), and Taylor (96) have discussed the need for

flexible class scheduling as important in developing a successful team teaching program.

Planning prior to starting a team teaching program has been considered important by Olson (82), Trump (100), Davis (27), and Belleau (11).

The use of paraprofessional help has been listed as an important factor in the development of team teaching programs (81,84,96,100). The use of paraprofessional help is apparently closely related to the organizational design of the team. Different organizational designs described in the literature call for different paraprofessional helpers.

There are many organizational designs for team teaching. Drummond (34) has identified five types of teams. Cunningham (26) has discussed four types in Keys to Team Teaching. The organizational scheme of the team itself has been discussed at length in the literature. Nystrand and Bertolaet (79) in a 1967 Review of Educational Research raised the question as to why teachers apparently resist hierarchical structure in teaming.

Physical space has been considered an important factor in the development of team teaching programs (27,81,82,100). Borg (15) found that adapting available space to team teaching programs was the greatest organizational problem in developing a team program. Kane (58) has investigated the influence the facilities at Dundee had on that particular team teaching

program.

The use of audio-visual equipment has been discussed by Olson (81), Trump (100), and Anderson (7) as important when developing a teaching team. Belleau (11) found the overhead projector and opaque projector related to the success of teaching teams in California.

Personality characteristics of team teachers probably play an important role in a team's success (25). Olson (82) and Heller (47) both have listed personality characteristics which they believed important for team success.

Cunningham (25) has researched the background and personality of teachers on teaching teams. The study involved 31 teams and 99 secondary teachers. A chi-square comparison between biographical relationship and team performance and sex, age, teaching experience, and recency of college training. But there were significant relationships beyond the .01 level between team performance and degree held, years as a team leader, and whether the teacher was teaching in his major or minor field. This study suggested that the personality characteristics of team members plays an important role in team success. Teachers who were rated high on total team performance were also rated particularly high on "cooperativeness", "emotional stability", "aggressiveness", "enthusiasm", and "conscientiousness".

Although teacher personality is not considered in this

study as an organizational variable in team teaching, Cunningham's findings were believed important enough to be reported. The strength of his findings should prompt school administrators to be alert to different personality factors when developing a team.

Davis (29) in his book, How to Organize an Effective Team Teaching Program, has recommended that parents and the community be kept informed of the development and activities of the team program. Beggs (10), when discussing the fundamental considerations for team teaching, listed the need for keeping the public informed as one of those fundamentals.

The elements which have been discussed are those factors in team teaching literature considered important in the development of a team teaching program. Five of these factors have been investigated in this study. The five factors are: method of team-teacher assignment, flexible grouping of students, flexible class scheduling, organizational design of the team, and the use of paraprofessional assistance. The first four were selected because they were shown to be closely related to the success of team teaching programs as reported in literature on the subject. Paraprofessional assistance was selected because the use of teacher aides apparently is closely related to the organizational design of the team program. The literature as it has spoken to these five elements will now be discussed.

Teacher Assignment to Teams

The specific factor of team-teacher assignment was investigated in this study. Therefore, the team teaching literature as it related to team teacher assignment was reviewed.

First, it should be understood that the assignment of all teachers has long been considered an important task in organizing an educational program. Elsbree and Reutter (35) in their book, Staff Personnel in the Public School, stated the importance of and difficulty in teacher assignment. He discussed what he considered good and poor practices in assigning teachers.

Van Zwoll (103, p. 126), in School Personnel Administration, made several observations about teacher assignment. He stated without citing supporting research:

In practice, assignments are made in a variety of ways, many assignments are made in terms of the competency of individual employed and in accord with the basis for his selection. There is no need to do more than emphasize the desirability of assigning employees in this fashion. However, there is also the malpractice of assigning employees without regard for their competencies. This malpractice must be brought into the open, recognized as generally harmful in its impact upon education, analyzed as to its causes, and diagnosed so that remedies may be devised and put into effect.

Anderson and Van Dyke (3, p. 337) reiterated the need for teachers to be assigned to positions which are best for their individual talents.

Team teaching has been recommended in several works as an organizational approach which can be used to make better use of teacher talents (16,60,101). Goldstein (42, p. 85) has discussed the problems of team teaching in an article for The Clearing House. He contended that many problems in team teaching could be eliminated by use of careful screening, selection, and assignment of teaching personnel.

Carl O. Olson (82, p. 8) wrote about team teaching in the 1967 June issue of the Peabody Journal of Education. He stated, "A critical factor in the failure of some teams is often the nature of the people selected to be on teams. All teachers are not qualified by virtue of their experience, temperament, or attitude to be members of a teaching team."

One of the difficulties in team teaching as reviewed by Hoover (50) was the inability of some teachers to cooperate to the degree demanded of teaching team members. While the inability to cooperate was seen as a problem, the development of individual teacher talents was viewed as a major advantage of team teaching (2,52). This apparent paradox, that an advantage of team teaching is to meet individual teacher differences and that a disadvantage is the inability of teachers to cooperate has added further weight to the suggestion that the assignment of teachers is extremely important.

Boren (14), superintendent of schools, in Weber County,

Utah, has stated that the selection of teachers for teams was tantamount to determining the future of team teaching and, in fact, all progressive advances in education. Weber County, Utah, was the location of the Center for Team Teaching. The Center was dissolved in 1968 because of insufficient funding from the federal government (95).

King (59, p. 364) stated in a 1962 article:

The method of assignment to teams has created some concern among teachers. Teachers like to make the decision to partake in team teaching themselves; arbitrary assignment without consultation is resented, even by teachers who enjoy the team situation.

Meyer's investigation (70) of five senior high schools observed that the school administration in those five schools shared the responsibility of teacher assignment with the team members. He recommended that team teachers become involved in the selection and assignment of new members.

Contrary to this finding is one in Belleau's study (11). Belleau found, among other elements, that the assignment of team teachers, whether voluntary or arbitrary, was unrelated to the teams success or failure.

Nevertheless, it appeared reasonable that since the personality characteristics of team members were probably important in the success of a team program (25) careful assignment to teams would be an important factor in the development of a successful team.

The importance of teacher assignment to a team teaching program was summed up by Peterson. He has stated in his book (83, p. 14), "the most important step you will take in actual implementation of team teaching will be the selection of staff members to man the program."

Team Teaching and Flexible Grouping of Students

The use of various size student groups with team teaching programs was considered important for teaming programs.

Heathers (46, p. 562) states in the most recent issue of the Encyclopedia of Educational Research:

A central aspect of most team plans is flexible grouping. The plans call for varying group size from very large to very small, depending on the learning task and the abilities of students. A working assumption has been that some curricular areas--particularly social studies, science, and literature--are well suited for large group instruction. A bonus that can result from large group teaching is that some members of the team are freed to work with small groups or with individual students, to plan other work or to confer with other teachers or parents.

Polos (84) reported that surveys of team teaching programs found these advantages to flexible grouping of students:

- 1) Team teaching uses the large-group lectures which allow the teachers to transmit their subject matter with the aid of electronic devices.
- 2) Team teaching uses the small group to develop the student's ability to make decisions and to think

and plan with others.

- 3) Team teaching uses large group instruction thus enabling more students to receive instruction without increasing the number of teachers.
- 4) Team teaching uses flexible grouping of students to give pupils opportunities to develop habits of independent study and self responsibility.

Casey (21, p. 168) has implied that team teaching requires basic changes of view toward student grouping. She believes that flexibility becomes an important consideration in developing class size. Casey stated:

New patterns of instruction are concerned with three basic activities tied to three different student environments: Content presentation in lectures to large groups; discussion in small groups; and creative exploration in independent study. And for exceptional situations a fourth, medium-sized group can be organized.

She has also suggested that 20 percent of the student's time should be spent in large group lectures, 50 percent in small group discussions, and 30 percent in independent study.

Trump and Miller (102, pp. 317-324) have indicated their belief that team teaching requires a flexible setting. They have suggested that the team members must determine which purposes are best served, respectively, by large group instruction, small group instruction, and independent study. They have recommended (102, pp. 389-390) that 20 percent of the time be spent in teacher-talking activities in either

conventional size classes or large group classes. They have recommended, further, that another 20 percent be spent in small group instruction and that 60 percent of the students' time be devoted to independent study. They have indicated their awareness that these figures will vary according to team procedure and individual students' needs.

Chamberlin (23, p. 61), in discussing flexible student grouping, stated:

Standing high on the list of advantages of a team teaching organization is grouping flexibility. Theoretically speaking, the larger the number of students assigned to a team, the greater its diversity. These two factors, size and diversity, make more flexible grouping possible. However, in practice, a reasonable maximum must be recognized when determining team size.

He went on to state that flexible grouping arrangements for large groups, small groups, and independent study were characteristics of team teaching programs.

Hoover (50, pp. 328-347) cited the use of three elements as basic to team teaching. These elements are: 1) large groups, 2) small groups, and 3) independent study.

Belleau (11) found in his study of successful and unsuccessful California secondary schools, that the use of small groups was related to the successful team teaching programs. And, Meyer (70) made the observation, in his study of five high schools, that team teachers experienced teaching difficulties with small group classes.

Graham (44) stated, in his descriptive study of the large secondary school team programs in Missouri, that one feature of the programs was that students were scheduled in large, small, and "regular-sized" groups. He also found team teaching programs provided independent study time for the students.

Borg (15) in his study of team teaching programs in the western United States, found that over half of the elementary, junior high, and senior high schools used some form of flexible grouping of students.

Several studies have reported findings on the effects of flexible grouping on students. Wallace (104), for example, found that individual differences among students should be taken into account in large group presentations, and recommended following up large group sessions with small group activities that involved all members of the instructional team.

Adams (1), Jensen et al. (54), Loretan (64), and Smith (91) all concluded in their studies that there were no apparent ill effects on the personalities of pupils taught in large group situations. In fact, many studies have reported that students evidently enjoy being taught by teams of instructors (1,13,54,55,78,93).

The reader is cautioned not to conclude that if students like team teaching that it is a "better" method of teaching.

There is a need for more research to examine the effects of team teaching on a student's self concept, personality, and academic achievement before it can be suggested that team teaching may be a better method of teaching.

Zweibelson, Bahnmuller, and Lyman (110) concluded that the team teaching approach combined with flexible grouping provided effective ways to deal with class size and that the heterogeneous grouping of youngsters for team purposes was felt to be more productive of "democratic living" than homogeneous grouping.

Team Teaching and Flexible Scheduling

Flexible grouping of students is not the only flexible aspect of team teaching programs. Heathers (46, p. 562) states that, "The theme of flexibility applies to continual variation of group composition and size, but flexibility also occurs in scheduling of time,"

There are several extant definitions of flexible class scheduling. In this study a flexible class schedule is considered to exist when class periods vary in length of meeting time during the day or week. This means that a class period would not follow a 55 minute, 40 minute or any set length of time for the entire week. A modular or variable type schedule is considered a flexible schedule.

It should be noted that the modular or variable type schedule is not truly "flexible" because once the schedule

is determined it remains the same. Nevertheless, flexibility is permitted at the time of constructing the schedule since the class length can be set to vary from day to day and from week to week. But after the schedule is completed it will remain constant until it is rescheduled. The modular schedule is usually rescheduled once or twice a year. Other variable type schedules can be rescheduled more than once a week.

Indications of the need for flexible scheduling to be used with team teaching have appeared throughout much of the literature. Davis (29), Beggs (10), Chamberlin (23), Polos (84), and Trump and Miller (102) all have agreed that team teaching programs need flexible time schedules.

Davis (29, p. 38) stated, for example, that:

Although excellent team programs may operate within the confines of a traditional schedule, many educators question the need for teaching every subject five times per week for the same number of minutes. To vary time, they have turned to flexible scheduling.

Polos (84, pp. 92-94), while admitting of disadvantages to flexible scheduling, has suggested that an important segment of team teaching organizational technique is purposefully to build into the team program a flexible schedule.

The use of flexible scheduling is explained with considerable clarity in A New Design for High School Education by Bush and Allen (20). Wood (109) discussed some pitfalls of flexible scheduling: 1) inadequate planning, 2) lack of

flexible spaces, 3) failure to establish learning resource centers. The importance of flexible scheduling as it related to flexible grouping and team teaching has been discussed by Wilmoth and Ehn in an article entitled, "The Inflexibility of Flexible Modular Scheduling" (108).

Davis (29) not only has suggested that team teaching programs need a flexible schedule but, in addition, he has prepared a pamphlet describing many types of flexible scheduling which can be used to improve the utilization of the school staff (30).

Peterson (83) has stated that, while a team teaching program need not use a modular schedule, the flexible scheduling of time is important in the development of a team program. He stated, in Effective Team Teaching (83, p. 50):

The method of teacher team scheduling which we have come to call "flexible-block scheduling," offers the innovation needed to put team teaching into functional operation in any high school with an absolute minimum of confusion and staff upheaval, even during the first stage.

Beggs (10) has held that, in organizing a teaching team, care needs to be taken so that class meeting lengths can be varied and the frequency of class meetings altered.

Trump and Baynham (101, p. 106) suggested as early as 1960 that, as more teachers and students become involved in team activities, greater flexibility in scheduling would result. Trump and Miller (102, p. 322) indicated they held

this same belief as late as 1968. In discussing team teaching programs they stated:

Another requisite is flexible schedule. Team members will decide not only who does what with which groups of students, but also when and for how long. Instead of rigid time arrangements in secondary schools, fostered by the concept of the self contained, or self sufficient classroom, time varies with the purposes of teaching and learning as described in Chapter 23 (Flexible Schedules). Unless teachers and students control time for their respective purposes, new procedures are needlessly inhibited.

It is perhaps surprising to note that in spite of all the recommendations that flexible scheduling be used for team teaching, Belleau (11) has found time arrangements to be unrelated to the success of teaching teams. Nevertheless, he recommended to those contemplating a team teaching program that large group presentations be limited to a maximum of 30 minutes.

Harrison (45), in his study of junior high schools, concluded that the full benefit of team teaching was not reached because schools were unwilling to disturb the "grade level" and the "daily schedule". He found the lack of flexible scheduling evident in a study of 48 junior high schools.

Borg (16), in a study of organizational and instructional techniques used in conjunction with team teaching programs, found developing a satisfactory schedule to be a major problem among school principals.

A flexible class period length appears to be of relatively little consequence in the elementary grade levels. But, a change in the grade structure is often used in conjunction with elementary teaching teams. This approach is referred to as the "nongraded school". In the nongraded school students progress at their individual rates rather than moving from grade level to grade level.

This pattern of flexibility by using teaching teams with the nongraded schools can be observed in the literature (4,60). It is perhaps best observed in Anderson's work (4). While he encourages flexible grouping of students and flexible plant facilities as important for team teaching he does not discuss flexible class scheduling for elementary students. He does suggest nongraded elementary schools as a way to introduce flexibility into the educational programs.

Although different names have been given to flexible scheduling it appears from the literature that some form of variable time scheduling is to be recommended when developing a team teaching program.

Anderson (7) has stated that, theoretically, team teaching provides for a great deal of flexibility and efficiency in the use of time. Trump (100, p. 330) has flatly stated, "Team teaching requires a flexible schedule." But research on practicing team teaching organization has indicated that the combined use of flexible scheduling and

team teaching is not evident (16,45).

The Organizational Design of Team Teaching Programs

The organizational design of team teaching programs has been referred to as "the structure of the team". The leadership and instructional roles members of the team are expected to perform have often decided the organizational design.

Bunyan (19) has discussed three organizational schemes for the teaming of teachers: the horizontal team, the vertical team, and the "Harvard team". In his study the horizontal team consists of a group of teachers instructing in the same subject matter area; vertical teams are organized across subject lines and cooperate to integrate activities whenever possible; "Harvard" type teams deal with organizing the personnel in the team rather than subject content of the team teachers. As defined by Bunyan, the Harvard team consists of a master teacher with two or three interns or aides assisting him.

Effective Team Teaching, by Carl Peterson (83), gives a good description of Easton Area High School, which has used the vertical approach to organizing the team.

Drummond (34) identified five basic types of teaching teams. They were:

- 1) A hierarchial structure, featuring a leader of superior educational preparation and leadership qualities, supported by senior teachers, part-time assistants and

clerical aides.

2) A coordinate-structure of two or more teachers who plan together with equal authority.

3) A team of several teachers in related subject-matter areas who work together in a two-or-three period block of instructional time.

4) Conventional teachers who were provided with assistance in the form of instructional secretaries, grader-assistants, and audio-visual specialists.

Davis (29, p. 13) has identified two basic types of team organizations. He called them the "hierarchic type" team and the "synergetic type" team. His definitions of these teams are:

Hierarchic teams. We can liken the hierarchic team to a pyramid with the team leader at the apex, master teachers just below, and regular teachers at the base assisted by interns and aides. A major purpose of the hierarchy is to provide teachers with means of professional advancement without having to leave the classroom. Well-known examples of this type of team are found in Lexington, Massachusetts; Pittsburgh, Pennsylvania; and the Claremont program in southern California.

Synergetic teams. Synergetic teams are formed by two or more teachers willing to cooperate as professional equals. Such teams may be developed to work within conventional facilities and schedules. All it takes is leadership, perseverance, and perspiration.

Polos (84) discussed two ways a team could be structured and three ways it could be organized. He explained that teams are usually structured vertically according to single subject

or horizontally according to grade level but crossing several subject areas.

The team may be organized in various ways. The most common approach has been the team-leader or "master-teacher" pattern. This is a situation in which one member of the team accepts the responsibility of coordinating the team efforts. The second most common way to organize a team has been the "associate" type team. In this type of team several teachers join together to form an instructional team. In the associate team there is no assigned leader. Polos (84) discussed a third type team he called the master-teacher: beginning-teacher design. Although this third type has been seldom used, he pointed out one peculiar characteristic-- older, more experienced teachers are used to train beginning teachers.

Chamberlin (23) has identified three organizational models for team development: 1) the "hierarchy" type and 2) the "cooperative" type. These two plans paralleled Davis' hierarchic and synergetic type teams. Polos' team-leader type is similar to Chamberlin's hierarchy team and Davis' hierararchic team. Polos' associate team might be classified as similar to Chamberlin's cooperative team or Davis' synergetic team. Chamberlin's third type is the research and instruction unit which he has suggested is in operation whenever local colleges and universities provide

research, evaluation, and instructional help to the local school team.

Several writers have stated that the cooperative type organization of team teaching is the "informal" type of organization and that as the team advances and develops it gradually evolves into a hierarchical type team (4,18).

The literature has pointed to the two basic types of teams: the cooperative team and the hierarchy team. It also has been pointed out that they could develop horizontally or vertically within the school.

The numbers and duties of team members has varied considerably. Brownell and Taylor (18, p. 151) have identified seven different types of team members. They are defined as follows:

A Team Teacher is a fully-licensed teacher who serves as a member of the teaching team.

An Intern Teacher is a beginning teacher, not yet fully licensed, who is given a regular teaching assignment on the team, and who receives supervision both from the employing school district and the sponsoring college or university.

An Auxiliary Teacher is a licensed teacher who is called in upon team request.

A Student Teacher is a college student assigned by a teacher education program to a school to observe and to do directed teaching under the supervision of a master teacher within that school.

A Master Teacher is an experienced, regularly-licensed teacher who possesses considerable

advanced study, unusual knowledge, and great skill in teaching.

A Teacher Aide is a noncertified person from the community who works with the team on a paid, part-time basis, relieving the teachers of clerical and other routine work so that they may concentrate on instructional activities.

A Community Resource Person is a talented individual, not ordinarily affiliated with the school, who can, under supervision of a teacher, assist in some specific aspect of the instructional program, or who can lead student study groups in his special area of competence.

Chamberlin (23) has divided the team members into the "professional" and "nonprofessional" groups. He has identified these "professional" members (p. 27):

- 1) Cadet Teacher
- 2) Executive Teacher
- 3) Lead Teacher
- 4) Master Teacher
- 5) Professional Teacher
- 6) Provisional Teacher
- 7) Regular Teacher
- 8) Senior Teacher
- 9) Special Teacher
- 10) Teacher Assistant
- 11) Teacher Intern
- 12) Team Leader

and these "nonprofessional" team members (p. 35):

- 1) Auxiliary Personnel

- 2) Clerical Aide
- 3) Paraprofessional
- 4) Parent-aide
- 5) Secretarial Assistant
- 6) Technical Aide

Anderson (4) has reported these team members as active in the hierarchy-type teams: team leader, senior teacher, teacher, intern, teacher aide, and clerical aide.

Polos (84) in explaining the Claremont program has said that, in addition to the team leader and his professional colleagues, the team could be helped by teacher aides, interns, auxiliary teachers, and laymen.

The simplest and most profound conclusion that can be made upon reviewing this voluminous literature is that there are various types of members of teaching teams. The professional members are always certified teachers with various degrees of authority and responsibility. These team members are directly responsible for instruction. The nonprofessional members assist the professional staff in various ways.

The Use of Paraprofessionals with Teaching Teams

Paraprofessionals, for the purpose of this study, have been defined as persons employed to assist the professional teachers on a volunteer or paid basis. The many different persons needed for teaming led to an examination of literature dealing with paraprofessional assistance in team

programs. There appeared to be a relationship between the type of organizational team design and the use of personnel other than certified teachers. These persons are most often referred to as "nonprofessionals" or "paraprofessionals". They are sometimes called "teacher aides", "auxiliary help", or "teacher assistants". For purposes of this study these persons are called "paraprofessionals".

Trump (100) said in a 1965 article for Education, that a team needs the help of general aides, clerks, and instructional assistants. He further stated that the instructional assistants do not need the certification requirements of a professional teacher. Three sources of these assistants were listed: 1) housewives, 2) advanced college students, and 3) retired teachers.

In their study, Brownell and Taylor (18) made the assumption that an advantage to team teaching was the use of paraprofessional help to release teachers from routine duties.

Davis (29) has suggested that aides be provided for teachers to help in nonprofessional tasks. He has suggested three sources of persons to help in this role--salaried aides, volunteer mothers, and student teachers. Polos (84) included the teacher aide as important to the basic framework of a team teaching program.

Chamberlin (23) recommended for the use of nonprofessional help to:

- 1) relieve the professional staff of noninstructional duties,
- 2) provide needed supportive services for the professional staff,
- 3) enrich the experiences of children.

He also suggested his six types of nonprofessionals who could be used in a team teaching program.

The National Education Association (NEA) has published two booklets describing the work of the auxiliary school personnel and the teacher aide (74,75). Auxiliary School Personnel cited examples of teacher aides used with team teaching programs (74, p. 15).

Graham (44), in his investigation of team teaching, found only 2 out of 17 Missouri high schools using non-certificated personnel. Bunyan (19) found that a characteristic of successful programs in the eastern United States was the availability of secretarial help for teachers on the teams.

Borg (16, p. 16) has found that the use of clerical help and teacher aides employed as part of a team is most common at the elementary level. Sixty percent of the elementary teams used clerical or teacher aides, 58 percent of the high schools used the services of aides, while only 35 percent of the junior-high schools used these assistants. He also discovered the use of student teachers or interns

to be quite uncommon in conjunction with a team teaching program.

The work assigned to paraprofessionals varies considerably. Graham (44) found teacher aides performing clerical duties. He found student teachers working with teaching teams doing such tasks as: 1) tutoring slow students, 2) performing clerical duties, 3) supervising study areas, 4) taking care of audio-visual materials, and 5) presenting large and small group instruction. Graham also found in this team teaching study two lay readers in the 17 schools studied. The lay readers were assigned the duty of reading and correcting themes.

The use of paraprofessionals has been regarded in the literature as a factor in the development of a team teaching program. They generally have been regarded as members of the team and their duties have varied according to the team's organizational design.

Summary

Many organizational factors of team teaching programs have been discussed in the team teaching literature. The elements most often mentioned are: team teacher selection and assignment, flexible grouping of students, flexible scheduling, organizational team design, use of paraprofessionals, planning prior to starting the program, physical space, need for strong leadership, use of audio-visual

equipment, and teacher personality characteristics.

Team teacher assignment, flexible grouping of students, flexible class scheduling, organizational team design, and the use of paraprofessionals are the factors selected to be investigated in this study. The first three were selected because of the nearly universal agreement in the literature on their importance for a successful team teaching program. The research at the time of this study's writing, however, had not confirmed that these practices were always employed in the development of a team teaching program. Nor had the research conclusively demonstrated the importance of these components to a team teaching program.

Organizational design and the use of paraprofessionals were factors selected because of the need seen by the researcher to determine their importance in the development of a team program. The literature has presented many types of team organizations. Research has yet to demonstrate that one type of design is used more than another or that one is more successful than another. Paraprofessional assistance has been so closely associated with the different types of teams that an investigation of the organizational design of the team necessarily includes the use of the paraprofessional.

Two basic organizational schemes have been regularly reported in the literature. They are the hierarchic and synergetic type teams. Both types can use paraprofessionals.

The synergetic team appears most likely not to use para-professional help although either type could conceivably operate with their assistance.

CHAPTER III. METHODS AND PROCEDURES

This study is concerned with identifying the possible importance of five selected organizational factors on the development of successful team teaching programs. The five factors are: the method of assignment of teachers to teams, the use of flexible grouping of students in team teaching programs, the use of flexible class scheduling in team teaching programs, the organizational design of the team and the use of paraprofessional assistance in the team teaching programs.

This chapter describes the methods and procedures followed in carrying out the study. The chapter is divided into six sections, as follows: 1) The Development and Construction of the Questionnaire, 2) The Pilot Study, 3) Selection of the Schools to be Used in the Study, 4) Collection of the Data, 5) The Methods Used in Treatment of the Data, and 6) Summary.

The Development and Construction of the Questionnaire

A descriptive-survey was chosen as the method to be used to gather information regarding the five organizational elements. A questionnaire was developed to collect the specific information. A questionnaire should do more than merely uncover data. As Mouly (72, p. 233) states, its purposes are, "to interpret, synthesize, and integrate the

data and to point to implications and interrelations."

A review of the pertinent literature indicated various relationships of the five selected factors in the development of team teaching programs. This information was noted and incorporated into the questionnaire. Two books, explaining the construction of questionnaires, Statistics in the Making--A Primer in Statistical Survey Method (68) and The Science of Educational Research (83) were helpful in the development of the survey instrument. Personal visitations to local schools which use team teaching were helpful in expanding the questionnaire. A first-draft questionnaire was designed which consisted of three parts.

The first part was intended to gather vital information related to the nature of the school where the successful team teaching program was in operation. The second part of the questionnaire was intended to probe the method of team teacher assignment, the type of organizational design used by the teams, the use of flexible student grouping, flexible scheduling, and paraprofessional assistance in the team teaching programs. The third part of the questionnaire was a rating scale on which the respondent was to indicate the importance each factor had with respect to the success of his team teaching program(s).

This first draft of the questionnaire was submitted to the following persons for review and suggestions:

Dr. Richard Manatt: Associate Professor of Educational Administration, Iowa State University, Ames, Iowa.

Dr. Trevor Howe: Professor of Educational Research, Iowa State University, Ames, Iowa.

Dr. Bill Clark: Director of Instructional Services, Polk County Educational Service Center, Des Moines, Iowa.

Dr. Norma Trowbridge: Director of Research, Polk County Educational Service Center, Des Moines, Iowa.

Mr. Jack Sims: Consultant on School Administration, Polk County Educational Service Center, Des Moines, Iowa.

Their suggestions were incorporated into a refined form of the questionnaire. At that point it was considered important to use the questionnaire in a pilot study to test its validity.

The Pilot Study

A pilot study was conducted using school administrators in Iowa who had had experience with team teaching programs. The intent was to insure a further critical review of the instrument and its ability to obtain relevant data.

More specifically, the pilot study was expected to determine (43, p. 281):

- 1) Acceptability and intelligibility of the questions from the respondents' point of view.
- 2) Possible misunderstanding of questions.
- 3) Clarity and applicability of definitions and classifications.
- 4) Completeness of questions for correct coding and interpretations.
- 5) Defects in the forms, instructions, questions etc.

In the pilot study, the questionnaire was delivered to administrators at four schools in Iowa which had had three or more years' experience with a team teaching program.

The four schools were:

- 1) Neveln Junior High School, Ankeny, Iowa;
- 2) Rolling Green Elementary School, Urbandale, Iowa;
- 3) Roosevelt High School, Des Moines, Iowa;
- 4) Urbandale High School, Urbandale, Iowa.

After the pilot study questionnaire was returned, the researcher conducted a follow-up interview with the participating school administrators. This interview was conducted to obtain information from the administrators as to how the questionnaire could be improved before mailing it to schools in the national sample.

In addition to asking for their suggestions as to

improving the questionnaire, the preliminary questionnaire's validity was checked when interviewing the respondents. This was done by seeing if the school administrators response to the questionnaire actually represented their views on the subjects investigated.

The questionnaire was revised based on the findings made in the interviews. This revision was also submitted to the panel of specialists listed above (Manatt, Howe, Clark, Trowbridge, and Sims). Their additional suggestions were included in the final form of the questionnaire to be mailed to the national sample of schools with successful team teaching programs (Appendix A).

This method of constructing the questionnaire was used to insure against overlooking important factors in designing the final instrument and so that the data received could be machine-tabulated by the Computer Center at Iowa State University.

Selection of the Sample

As explained by Herriott, in the Encyclopedia of Educational Research (48, p. 1401) sampling for surveys may be "fortuitous", "purposive", or "random".

In fortuitous sampling little concern is expressed for the representativeness of the selected elements (48, p. 1401). Random sampling, also called probability sampling, is when each element from a population has an equal, but

nonzero, probability of being included in the sample (48, p. 1401; 63, p. 6). Herriott (48, p. 1401) states that purposive samples, "are selected on the assumption that they are typical or representative of some "hypothetical universe".

The decision was made to use a purposive sample; and schools selected were limited to those having successful team teaching programs.

Mandel, in Statistics for Management, (67, p. 171) states that a major disadvantage of purposive samples (called "judgment samples" in his book) is that there is no way of measuring the accuracy of the sample as it relates to the universe. Thus, Mandel would caution the researcher not to make generalizations for all successful team teaching programs based on the sample used in this study. There is evidence, however, that greater confidence in the results of purposive sample studies is developed when identical inferences are obtained from similar but independent sample studies (48, p. 1401).

This study is limited to the investigation of "successful" team teaching programs. This approach was based on the assumption that elements related to the organization of team teaching could best be measured by examining exemplary programs which have existed for at least three years.

Although it is possible to compare components of

successful and unsuccessful programs, finding administrators willing to discuss their unsuccessful programs is difficult. This is illustrated in Belleau's study (11, p. 21) of California Team Teaching Programs. In his research he identified, in 1963, 51 California schools which had discontinued team teaching and 280 schools operating team teaching programs at the secondary level. In Belleau's study a discontinued team was considered to be an unsuccessful team. In the returns of the questionnaire used in the investigation there appeared only 21 responses (less than 45 percent) from discontinued team schools compared to 193 (or 69 percent) from schools still operating a team teaching program.

This experience suggests that educators are quick to point to successful programs and suggest that others follow their example, but they are reluctant to discuss those programs which have failed. Additionally, because it was not the intent of this study to examine factors contributing to the failure of team teaching programs but rather those contributing to the success of such programs, only successful programs were examined.

In the review of literature it was discovered that several educators of outstanding repute in the team teaching field had identified schools in the United States and Canada that they considered successful (10,19,23,29,84,101). A list of these schools was tabulated (Appendix B).

Only those school programs recognized as successful by educational leaders in team teaching, and, in addition existing as a continuous program for three years or more were used in the sample of successful team teaching programs in this study.

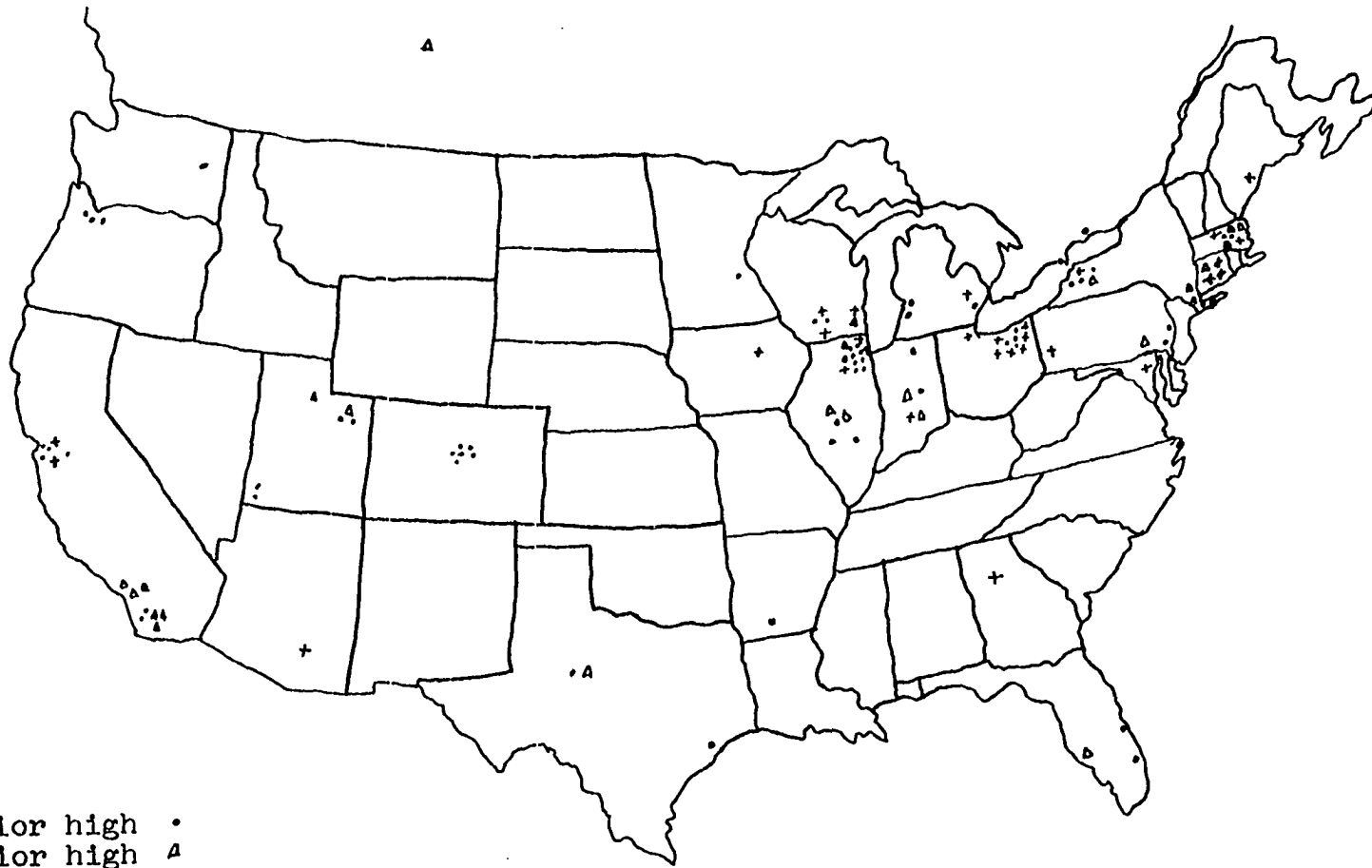
If, in the collection of the data, it had been discovered that a school had discontinued all of its teams, the school would have been eliminated from the sample of successful team teaching programs.

Originally the schools in the sample included 65 senior high schools, 25 junior high schools, and 22 elementary schools. There were 112 schools identified as having successful team programs, this number was later reduced to 88 schools. Since some schools had more than one team, the total number of teams investigated was 188.

Galfo and Miller (38, p. 319) have stated that whatever is to be learned about team teaching will evolve from school systems that are willing to experiment with the idea. This seems to suggest that the purposive sampling of successful team teaching programs as used in this study is perhaps most appropriate.

Collection of the Data

In the final phase of the study, the questionnaire was mailed to the selected schools operating successful team teaching programs. A letter of explanation (Appendix C)



Senior high •
 Junior high Δ
 Elementary school +

Figure 1. Geographical distribution of the selected team teaching programs

was mailed with the questionnaire to each school. The letter explained the need for the study and requested that the questionnaire be completed by the school administrator responsible for the administration and supervision of the team teaching program. A self-addressed, stamped envelope was included and it was requested that the questionnaire be filled out and returned as quickly as possible.

Three weeks after the questionnaire was mailed 36 percent of the surveys had been returned. A follow-up postcard was mailed urging a quick reply. Two weeks after the follow-up postcard was mailed a second questionnaire and letter (Appendix D) was sent to the schools. At the end of seven weeks from the mailing of the first questionnaire there was a 71 percent return.

Of the 112 schools in the initial sample 80 schools returned the questionnaire. Surprisingly, 24 of the persons returning the questionnaire no longer had a team teaching program in their schools. This was unexpected since all schools in the sample were identified in the literature as exemplary team programs. Subtracting these 24 schools from the original 112 schools left a sample of 88 schools. Fifty-six of these schools returned completed questionnaires but three of the returned surveys were not usable. The 53 remaining schools were used as the final sample for this study. A 60 percent usable return was obtained from the 88

schools.

Nine of the 53 schools were unable to answer part two of the questionnaire because they were involved in a highly individualized program, or because they did not have any individual teams operating for three years. These nine schools did not contribute teams to the team analysis of the study. One hundred and eight-eight teams were analyzed from the remaining 44 schools.

The questionnaires were completed by various persons responsible for the team programs. Sixty-two percent of the questionnaires were completed by building principals, 13.3 percent by assistant principals, 13.3 percent by team leaders, and 11.4 percent by other school personnel.

Treatment of the Data

The respondents' answers to the questionnaire were divided into various groupings for comparisons. First, they were divided into grade levels as follows:

- 1) Elementary Team Teaching Programs, grades K - 6
- 2) Junior High Team Teaching Programs, grades 7 - 9
- 3) Senior High Team Teaching Programs, grades 10 - 12.

Second, the information was divided according to the graded and nongraded schools. Next, the data were subdivided according to the five organizational factors which are investigated in this study. The data collected from the questionnaire are presented numerically and in percentage

form in Chapter IV.

The chi square test for independence was used to test the association between various factors. It was this examination which tested the null hypothesis in Chapter I. Chi square is defined as (36, p. 192):

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

where

O = observed frequency,

E = expected frequency.

The chi square test was used to test the association:

- 1) between grade levels and the method of teacher assignment in successful team teaching programs,
- 2) between grade levels using teams and the types of organizational team designs,
- 3) between grade levels using teams and the use of flexible student grouping, flexible scheduling, and paraprofessionals,
- 4) between graded and nongraded approaches to instruction and the five organizational factors under investigation,
- 5) between the types of organizational team designs and the method of team teacher assignment,
- 6) between the types of organizational team designs and the use of flexible student grouping, flexible scheduling, and paraprofessionals, and
- 7) between the method of teacher assignment to teams and the use of flexible student grouping, flexible scheduling, and paraprofessionals.

The information for the above was gathered from Part II of the questionnaire. Part III of the survey permitted the respondents to rate the importance of different factors with respect to the success of the team teaching programs. Mean scores were calculated for the different groups within the sample. Correlation coefficients were computed to determine the correlation between the 13 elements listed in the survey. Special attention was given to those factors selected for this study. The formula used to determine the correlation coefficient was (36, p. 110):

$$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \Sigma y^2}}$$

where

x is the deviation from the means of variable X,

y is the deviation from the means of variable Y.

Observations then could be made of the relation between the actual use of the five factors investigated and the degree of importance the respondents believed these five elements have on the success of team teaching programs. These observations are discussed in Chapter V.

The findings of the five factors with respect to successful team teaching programs were presented in various forms. First, numerical and percentage figures were used to describe the successful team teaching programs and the individual teaching teams.

Second, the null hypotheses that no association exists between different aspects of team teaching and the selected elements was tested using the chi square test for independence.

Third, means and correlation coefficients were computed to determine the degree of importance of various components of team teaching as perceived by the team administrators.

Fourth, comparisons were made and conclusions drawn between the actual use of the five factors investigated and the degree of importance respondents attached to the five factors in the development of successful team teaching programs.

Summary

This chapter discusses the methods and procedures used in this study. First, a rough-draft questionnaire was developed to gather information regarding the five organizational variables. With the help of a panel, the researcher developed a preliminary questionnaire to be used in a pilot study.

The pilot study involved four Iowa schools which had had successful team teaching programs for at least three years. The pilot study was used to insure a critical review of the instrument and its ability to obtain relevant data. The researcher conducted interviews with the four school administrators participating in the pilot study to

check the questionnaire's validity and to ask their suggestions for improving the instrument. The panel used earlier was again consulted before developing the final questionnaire.

A purposive sample was decided as the best method to collect data about successful team teaching programs. Authorities in the fields of team teaching research and administration mentioned in the literature 112 schools with successful team teaching programs which had been in operation for at least three years. This number of team programs was later reduced to 88. It was decided that only information from teams which had been in continuous operation for three years or more would be considered in this study.

The questionnaire was mailed to the selected schools operating the successful team teaching programs. Follow-up requests were sent to those schools not responding within three weeks. After five weeks a second questionnaire and letter was mailed to the nonresponding schools. At the end of the seven weeks the information received was analyzed.

The data are presented in numerical, percentage, and statistical tables in Chapter IV below. The chi square test for independence was used to test the null hypotheses and correlation coefficients were computed to determine correlation between the factors believed important by the respondents. In Chapter V conclusions and comparisons have

been made between the actual use of the five factors and the degree of importance the respondents attached to each in the development of a successful team teaching program.

CHAPTER IV. FINDINGS

The findings of the study to identify organizational factors of successful team teaching programs are presented in this chapter. Teacher assignment, use of flexible student grouping, use of flexible scheduling, team organizational design, and use of paraprofessionals were the five factors examined.

The data presented in this chapter were divided into five major divisions: 1) characteristics of schools and team programs in the sample, 2) characteristics of individual teams in the sample, 3) factors of successful teaching teams, 4) associations between the five organizational factors, and 5) importance of various factors in successful programs.

The organizational elements investigated in this study have been examined according to their use in schools sponsoring team programs and according to their use by individual teams within the programs. Therefore characteristics of the schools and team programs are discussed below, followed by an examination of the individual teams.

Characteristics of Schools and Team Programs

The 53 team programs were divided according to grade level for analysis. This resulted in 26 senior high team programs, 15 junior high team programs, and 12 elementary team programs. The schools from which the team programs

Table 1. The grade level organization of the investigated team programs

Grade level organization of the schools	Number of team programs
K-6	6
K-8	1
Other elementary organizations	5
7-9	11
Other junior high organizations	3
7-12	3
9-12	10
10-12	12
K-12	2
Total	53

came varied greatly according to grade level organization (Table 1).

Another way of looking at the grade organization is by classifying the team programs as graded or nongraded. Most of the team programs, 79.2 percent, were operating in graded schools (Table 2).

The percentage of teachers involved in team teaching in the 53 schools also was examined. The extent to which team teaching was used in the total school program varied greatly.

In seven schools all teachers in the system were team teaching. At the other extreme, one school was found in which only 3 percent of the teachers were involved in team

Table 2. The number of graded and nongraded schools operating team programs according to grade levels

School organization	Senior high schools		Junior high schools		Elementary schools		Total	
	No.	%	No.	%	No.	%	No.	%
Graded	23	88.5	14	93.3	5	41.7	42	79.2
Nongraded	3	11.5	1	6.7	7	58.3	11	20.8
Total	26		15		12		53	

Table 3. The percent of teachers in the schools involved in team teaching.

Percent of faculty involved in team teaching	Number of schools
91 - 100	10
81 - 90	4
71 - 80	4
61 - 70	2
51 - 60	2
41 - 50	0
31 - 40	5
21 - 30	8
11 - 20	8
0 - 10	10

teaching. Table 3 shows the percentages of faculties who were involved in the schools team teaching program.

Of the 53 schools in the sample 41.2 percent (22 schools) had one grade or more receiving all instruction from teaching teams. Totally team-taught grades were more common at the elementary level. All of the elementary schools had at least one or more grades completely team-taught. Seven junior high schools and three senior high schools provided for completely team taught grades.

The teacher-pupil ratio of the schools ranged from one teacher per 14 students to one teacher per 30 students. The average teacher-pupil ratio was 20.6 students per teacher. Again the degree of differences within the sample indicated

that the successful team teaching programs varied widely in teacher-pupil ratios.

Total student enrollment ranged from 5000 students in one senior high school to 170 in another senior high school. The mean enrollment was 1399 students.

Only team programs which were in existence for three years or more were used in this study. The interest in staff utilization generated in the late 1950s can be seen in the number of programs operating for ten years or less (Table 4).

Table 4. The number of years continuous team teaching had existed in the 53 programs and the 188 teams

Number of years operating a continuous program	Number of programs in continuous operation	Number of teams in continuous operation
18	1	3
15	1	1
13	1	3
12	1	5
11	1	1
10	9	34
9	7	44
8	5	17
7	4	6
6	8	10
5	3	20
4	4	19
3	8	25
Total	53	188

The use of the five organizational factors was examined according to grade level classifications. It was not possible to use the chi square test of independence for the 53 programs because of the small and empty cells in various categories. Nevertheless, the number and percent of team programs using the different elements are listed. Chi square tests for independence were possible when examining the 188 individual teams, and will be present in the next section.

First, the method of assigning teachers to teams was examined. Almost half, 49.1 percent of all team teaching programs used only the voluntary method of assigning teachers to teams. Unexpectedly, 15 percent (or eight schools) mixed the method of assigning teachers to teams.

"Other" methods of assignment were usually procedures in which the administration and team teachers worked together in selecting replacements for the team. The administration and the team members would share the final approval of the replacements. On occasion the members had final approval and sometimes the administration gave final approval for hiring persons to work with the team. "Mixed" methods of assignment were those schools in which combinations of two or more methods in assigning teachers to work in teams were used. The larger schools were more likely to mix procedures in assigning teachers to teams (Table 5).

It appears that successful team teaching programs use

Table 5. Number and percent of programs which used various methods of assigning teachers to teams according to grade level classifications

Method of assignment	Senior high team programs		Junior high team programs		Elementary team programs		Total programs	
	No.	%	No.	%	No.	%	No.	%
Arbitrary	6	23.1	3	20.0	1	8.3	10	18.9
Voluntary	12	46.2	6	40.0	8	66.7	26	49.1
Other	3	11.5	4	26.7	2	16.7	9	17.0
Mixed	5	19.2	2	13.3	1	8.3	8	15.0
Total	26		15		12		53	

a great deal of flexible grouping of students. While 47.2 percent used only flexible grouping of students another 49.0 percent used a combination of flexible grouping and traditional size classes. The fact that only 2 of the 53 teams used only traditional-size classes supports the position that successful team teaching programs are facilitated by the use of flexible student groupings. This position will be discussed in more detail when examining the use of flexible grouping within individual teams (Table 6).

It was discovered that 42.3 percent of the high schools and 46.7 percent of the junior high schools used a traditional length period with their team teaching program. It was also found, that no elementary school reported themselves as operating under a traditional length period. Most of the elementary schools, 66.7 percent, reported their schools operated under a modular type schedule. Six schools used both the traditional and modular type schedule and 9 indicated they used some "other" type of schedule. "Other" type schedules varied from block scheduling to individualized programs where the length of periods were considered neither modular or traditional (Table 7).

Modular periods ranged from 15 minutes to 30 minutes. The average length for modular periods was 25 minutes. Traditional length periods averaged 48 minutes with a range from 40 minutes to 60 minutes. The 30 minute module was the

Table 6. Number of team programs which used flexible size student grouping according to grade level classification

Type of student grouping	Senior high team programs		Junior high team programs		Elementary team programs		Total programs	
	No.	%	No.	%	No.	%	No.	%
Traditional size classes only	1	3.8	1	6.7	0	0	2	3.8
Flexible size classes only	12	46.2	7	46.7	6	50.0	25	47.2
Both size classes	13	50.0	7	46.7	6	50.0	26	49.0
Total	26		15		12		53	

Table 7. Number of team programs which used flexible scheduling according to grade level classification

Type of scheduling	Senior high team programs		Junior high team programs		Elementary team programs		Total programs	
	No.	%	No.	%	No.	%	No.	%
Traditional length periods	11	42.3	7	46.7	0	0	18	34.0
Modular length periods	9	34.6	3	20.0	8	66.7	20	37.7
Traditional and modular periods	3	11.5	1	6.7	2	16.7	6	11.3
Other types of scheduling	3	11.5	4	26.7	2	16.7	9	17.0
Total	26		15		12		53	

most common modular length reported and the 55 minute period was reported most by those using the traditional length periods.

The synergetic team organization was the most popular type of organization found in the 53 team teaching programs. Nevertheless, it is noteworthy that within the elementary team programs the hierarchic organization was used most frequently (Table 8).

In all three grade level classifications it was found that 50 percent or more of the programs were employing some type of paraprofessionals for all teaching teams. At the elementary level no program was without paraprofessional assistance. Unlike the elementary team programs the senior high programs had 42.3 percent without paraprofessional help. It was discovered that half of the senior high and two-thirds of the junior high programs did provide paraprofessional help for all teams (Table 9).

From this description of the team teaching programs it was found that the use of organizational elements varied greatly within grade levels. Most programs favored voluntary assignment practices for teachers. Flexible class grouping, or combinations of flexible and traditional class sizes were commonly used in all grade level classifications.

In the area of scheduling, only the elementary schools seemed to favor the flexible modular approach. Successful

Table 8. Number of team programs using various team organizational designs according to grade level classification

Type of team organization	Senior high team programs		Junior high team programs		Elementary team programs		Total programs	
	No.	%	No.	%	No.	%	No.	%
Synergetic	11	42.3	8	53.3	4	33.3	23	43.4
Hierarchic	5	19.2	2	13.3	5	41.7	12	22.6
Other	4	15.4	4	26.7	1	8.3	9	17.0
Mixed	6	23.1	1	6.7	2	16.7	9	17.0
Total	26		15		12		53	

Table 9. Number of team programs which used paraprofessionals according to grade level classifications

Paraprofessional use	Senior high team programs		Junior high team programs		Elementary team programs		Total programs	
	No.	%	No.	%	No.	%	No.	%
All teams used paraprofessionals	13	50.0	10	66.7	11	91.7	34	64.2
Some teams used paraprofessionals	2	7.7	3	20.0	1	8.3	6	11.3
No team used paraprofessionals	11	42.3	2	13.3	0	0	13	24.5
Total	26		15		12		53	

secondary programs used the traditional length periods. The synergetic team organization was favored by the junior and senior high programs while hierarchic teams were used by a majority of the elementary teams. All grade level classifications appeared to make great use of paraprofessionals. The elementary programs were more likely to provide teams with paraprofessionals. Senior high schools failed to give 42.3 percent of their programs any paraprofessional help.

Characteristics of Individual Teams

To satisfy the hypotheses described in Chapter I it was necessary to separate the individual teams from the team teaching programs. By examining the individual teams apart from the programs it is possible to identify characteristics of successful teams in team programs. And in examining the characteristics of successful teams it is hopefully possible to isolate components of the successful team programs.

Of the 53 programs investigated 9, while having a continuous program for three years, did not have information concerning individual teams. Some of the nine had experimented with different teams but did not report an individual team which had operated on a continuous basis for three years. Therefore 44 team teaching programs contributed 188 individual teams for examination.

One program reported 18 teams which fit the study's criteria. Two teams was the number most often reported.

Table 10. The number of individual teaching teams used from team programs

Number of teaching teams provided from a program	Number of team programs providing individual teams	Total number of teams
18	1	18
15	1	15
10	3	30
8	1	8
6	6	36
5	3	15
4	4	16
3	7	21
2	11	22
1	7	7
0	9	0
Total	53	188

It should be pointed out that several programs may have more functioning teams but only teams in use for three years were used in this study (Table 10).

For purposes of this study teaching teams were subdivided into senior high teams in grades 10 through 12, junior high teams in grades 7 through 9, and elementary teams in grades 1 through 6. The senior high category also included teams teaching multiple grades (9 through 12). There were 94 senior high teams, 55 junior high teams, and 39 elementary teams (Table 11).

Table 11. The number of teams working with various grade levels

Grades to which teams were assigned	Number of teams	Percent of teams
Multiple grades 1-6	16	8.5
Single grades 1-6	23	12.2
Multiple grades 7-9	20	10.6
Single grades 7-9	35	18.6
Multiple grades 10-12	15	8.0
Single grades 10-12	63	33.5
Multiple grades 9-12	16	8.5
Total	188	

The results of the chi square test for independence given in Table 12 reveal a highly significant association between the use of nongradeness and grade level in successful teaching teams. This information is presented to better inform the reader of the type of sample used in this investigation. It might be noted that over 90 percent of the senior and junior high teams were operating in a graded climate while only 25.4 percent of the elementary teams performed in a graded environment.

The number of teachers working in teams also provides

Table 12. Chi square contingency table for grade level classification and use of graded and nongraded classes

Graded or nongraded classes	Senior high teams No.	Junior high teams No.	Elementary teams No.	Total teams No.
Graded	86	51	10	147
Nongraded	8	4	29	41
Total	94	55	39	188
Cal. $X^2 = 79.721^{**}$	$X^2 .05, 2 \text{ d.f.} = 5.991$	$X^2 .01, 2 \text{ d.f.} = 9.210$		

**Significant at the .01 level in this and subsequent tables.

Table 13. The size of teaching teams investigated

Number of teachers per team	Teams with that number of teachers		Total number of teachers involved
	No.	%	
15	4	2.1	60
12	1	.5	12
11	1	.5	11
10	2	1.1	20
9	3	1.6	27
8	2	1.1	16
7	4	2.1	28
6	14	7.4	84
5	19	10.1	95
4	65	34.6	260
3	27	14.4	81
2	42	22.3	84
1	4	2.1	4
Total	188		782

additional information in looking at the sample from which this study was completed.

The average size team in this study was 4.15 teachers. From the data it appears that teams of two, three, and four were the most popular. As can be seen in Table 13, most of the teams consisted of two to six teachers.

A chi square test of independence was not calculated for grade classifications and size of school because several of the categories contained zero. Before examining the organizational elements of this study it is important to observe that all usable elementary teams were from

schools under 1000 students. No senior high teams came from schools with fewer than 500 students. The earlier reported senior high school with an enrollment of 170 did not provide information on individual teams for this investigation (Table 14).

It is believed that the association found in individual teams among the five organizational factors and grade level classifications identifies organizational factors important in successful team teaching programs. The individual teams are examined below. They are divided according to grade level classification and also according to graded and non-graded approaches to instruction. Following these examinations the five organizational factors are discussed with regard to the association of each other in successful teaching teams.

Factors of Successful Teaching Teams

First the five elements as they relate to grade level classification were examined.

The chi square test of independence for both the method of assignment and the use of team members to approve team replacements in association to grade level classifications yielded highly significant results. Therefore, the first null hypothesis that there is no association between grade levels using teams and the method of teacher assignment in successful team teaching programs was rejected (Table 15).

Table 14. Size of schools the teams came from

Grade level classification	Enrollment of schools									
	Less than 500		500 to 999		1000 to 1999		More than 2000		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Senior high teams	0	0	27	40.9	35	51.6	32	94.1	94	50.0
Junior high teams	4	20.0	16	24.2	33	48.4	2	5.9	55	28.2
Elementary teams	16	80.0	23	34.9	0	0	0	0	39	21.8
Total	20		66		68		34		188	

Table 15. Chi square contingency table for the method of teacher assignment and grade level classification

Assignment method	Senior high teams	Junior high teams	Elementary teams	Total teams
Arbitrary assignment	41	3	5	49
Voluntary assignment	43	21	23	87
Other assignment methods	10	31	11	52
Total	94	55	39	188
Cal. $\chi^2 = 51.077^{**}$	$\chi^2 .05, 4 \text{ d.f.} = 9.488$			
	$\chi^2 .01, 4 \text{ d.f.} = 13.277$			
Team approves replacements	80	46	13	139
Team does not approve replacements	14	9	26	49
Total	94	55	39	188
Cal. $\chi^2 = 42.136^{**}$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$			
	$\chi^2 .01, 2 \text{ d.f.} = 9.210$			

The second null hypothesis that there is no association between grade levels of successful teams and the type of organizational team design was likewise rejected. As indicated in Table 16 the chi square test once again yielded

Table 16. Chi square contingency table for type of organizational team design and grade level classification

Organizational team design	Senior high teams	Junior high teams	Elementary teams	Total teams
Synergetic teams	64	25	16	105
Hierarchic teams	23	4	20	47
Other teams	7	26	3	36
Total	94	55	39	188
Cal. $\chi^2 = 54.931^{**}$	$\chi^2 .05, 4 \text{ d.f.} = 9.488$			
	$\chi^2 .01, 4 \text{ d.f.} = 13.277$			

significant results. It should be pointed out that two categories (cells) contained small numbers of three and four. Nevertheless, because of the high level of significance indicated in the test the results are reported as highly significant.

Three separate investigations were needed to test the third null hypothesis. The third null hypothesis stated that there is no association between grade levels using teams and the use of flexible student grouping, flexible scheduling and paraprofessionals in successful team teaching programs. First, the association between grade level and flexible grouping was examined.

The first part of the third null hypothesis was rejected since the chi square test of independence between the use of flexible grouping and grade level classification demonstrated significant differences. It was not possible to calculate a chi square from the data reported concerning the use and non-use of small group instruction. Therefore the size of small groups were divided into those using 15 students or less and those groups using 16 students or more. A significant association was found and is reported in Table 17.

The chi square test was applied to data for the use and nonuse of traditional size groups, large group instruction, and independent study time. These tests were found not to be significant. The chi square for traditional size groups was 5.852, large group instruction was 5.176, and independent study time was 2.116. A chi square of greater than 5.991 was needed for it to be significant at the .05 level.

The test for independence reported in Table 18 reveals highly significant differences. It may be concluded that the data refute the null hypothesis that there is no association between flexible scheduling and grade level of successful teaching teams. Part two of null hypothesis three was rejected.

The third part of hypothesis three states that there is no association between grade levels and use of paraprofessionals in successful teaching teams. The highly

Table 17. Chi square contingency table for the use of flexible grouping and grade level classification

Flexible grouping	Senior high teams	Junior high teams	Elementary teams	Total teams
Did not use flexible grouping	43	7	6	56
Used flexible grouping	51	48	33	132
Total	94	55	39	188
Cal. $\chi^2 = 22.967^{**}$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$			
	$\chi^2 .01, 2 \text{ d.f.} = 9.210$			
Use small group 15 students or less	39	38	24	101
Use small group 16 students or more	44	15	15	74
Total	83	53	39	175
Cal. $\chi^2 = 8.381^*$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$			
	$\chi^2 .01, 2 \text{ d.f.} = 9.210$			

*Significant at the .05 level in this and subsequent tables.

significant results reported in Table 19 reject that hypothesis.

The fourth chi square test reported in Table 19 divided paraprofessionals according to types reported in the survey and other types not specified. The teams classified as using

Table 18. Chi square contingency table for the type of scheduling and grade level classification

Type of scheduling	Senior high teams	Junior high teams	Elementary teams	Total teams
Did not use traditional length periods	45	16	29	90
Used traditional length periods	49	39	10	98
Total	94	54	39	188
Cal. $\chi^2 = 18.738^{**}$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$			
	$\chi^2 .01, 2 \text{ d.f.} = 9.210$			
Did not use modular length periods	60	53	33	146
Used modular length periods	34	2	6	42
Total	94	54	39	188
Cal. $\chi^2 = 22.541^{**}$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$			
	$\chi^2 .01, 2 \text{ d.f.} = 9.210$			
Did not use flexible scheduling	78	45	7	130
Used flexible scheduling	16	10	32	58
Total	94	54	39	188
Cal. $\chi^2 = 60.490^{**}$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$			
	$\chi^2 .01, 2 \text{ d.f.} = 9.210$			

Table 19. Chi square contingency table for the use of paraprofessionals and grade level classifications

Type of paraprofessionals	Senior high teams	Junior high teams	Elementary teams	Total teams
Did not use any type paraprofessional	32	11	1	44
Used some type paraprofessional	62	44	38	144
Total	94	55	39	188
Cal. $\chi^2 = 15.738^{**}$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$			
	$\chi^2 .01, 2 \text{ d.f.} = 9.210$			
Did not use teacher aides or associates	72	21	12	105
Used teacher aides or associates	22	34	27	83
Total	94	55	39	188
Cal. $\chi^2 = 33.320^{**}$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$			
	$\chi^2 .01, 2 \text{ d.f.} = 9.210$			
Did not use voluntary paraprofessionals	88	45	21	154
Used voluntary paraprofessionals	6	10	18	34
Total	94	55	39	188
Cal. $\chi^2 = .29.430^{**}$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$			
	$\chi^2 .01, 2 \text{ d.f.} = 9.210$			

Table 19. (Continued)

Type of paraprofessionals	Senior high teams	Junior high teams	Elementary teams	Total teams
Did not use other types paraprofessionals	89	38	33	160
Used other type paraprofessionals	5	17	6	28
Total	94	55	39	188
Cal. $\chi^2 = 17.935^{**}$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$			
	$\chi^2 .01, 2 \text{ d.f.} = 9.210$			

other type paraprofessionals indicated they used nonprofessional assistants who were not aides, associates, volunteers, interns, clerks, or typists. Usually these persons were called "lab assistants" or "student teachers". No significant association was found with regard to the grade level and the use of clerk-typists or interns.

The reader's attention is directed to the small cell of one under elementary schools not using paraprofessionals in Table 19. Although elementary and junior high teams could be combined to eliminate the small cell the finding would not be consistent with this study. The three remaining chi square tests are reported in Table 19 to verify the rejection of the null hypothesis when using aides or associates, voluntary, or

"other" paraprofessionals.

The first three null hypotheses stated in Chapter I were rejected. Another observation made between the five organizational factors and grade classification is reported in Table 20. Here the association between graded and non-graded team approaches and the five investigated elements are examined using the chi square test for independence.

Table 20. Chi square contingency table for the five organizational factors and graded and nongraded approaches to instruction

Organizational factors under investigation	Graded team approach	Nongraded team approach	Total
Arbitrary assignment	46	3	49
Voluntary assignment	66	21	87
Other type assignments	35	17	52
Total	147	41	188
Cal. $\chi^2 = 10.959^{**}$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$		
	$\chi^2 .01, 2 \text{ d.f.} = 9.210$		
Synergetic team	90	15	105
Hierarchic team	28	19	47
Other type teams	29	7	36
Total	147	41	188
Cal. $\chi^2 = 13.156^{**}$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$		
	$\chi^2 .01, 2 \text{ d.f.} = 9.210$		

Table 20. (Continued)

Organizational factors under investigation	Graded team approach	Nongraded team approach	Total
Did not use flexible grouping	49	7	56
Used flexible grouping	98	34	132
Total	147	41	188
Cal. $\chi^2 = 4.053^*$	$\chi^2 .05, 1 \text{ d.f.} = 3.841$		
	$\chi^2 .01, 1 \text{ d.f.} = 6.635$		
Did not use flexible scheduling	112	18	130
Used flexible scheduling	35	23	58
Total	147	41	188
Cal. $\chi^2 = 15.666^{**}$	$\chi^2 .05, 1 \text{ d.f.} = 3.841$		
	$\chi^2 .01, 1 \text{ d.f.} = 6.635$		
Did not use para- professionals	37	7	44
Used paraprofessionals	110	34	144
Total	147	41	188
Cal. $\chi^2 = 1.172$	$\chi^2 .05, 1 \text{ d.f.} = 3.841$		
	$\chi^2 .01, 1 \text{ d.f.} = 6.635$		

The chi square tests reported in Table 20 show that an association existed between graded and nongraded approaches to instruction and 1) method of assignment, 2) type of

organizational design, and 3) use of flexible scheduling. These are reported as highly significant. The association between flexible grouping and graded and nongraded approach to instruction is reported as significant. Only the use of paraprofessionals with regard to graded and nongraded approach was found not to be significant.

Association Between the Five Organizational Factors

In order to answer the last three hypotheses stated in Chapter I it is necessary to examine the association between the five organizational factors. These three null hypotheses are:

4) There is no association between the type of organizational team design and the method of team teacher assignment in successful team teaching programs.

5) There is no association between the type of organizational team design and the use of flexible student grouping, flexible scheduling, and paraprofessionals in successful team teaching programs.

6) There is no association between the method of teacher assignment to teams and the use of flexible student grouping, flexible scheduling, and paraprofessionals in successful team teaching programs.

The null hypothesis that there is no association between the type of organizational team design and the method of team teacher assignment in successful team teaching pro-

Table 21. Chi square contingency table for type of team organization and method of teacher assignment

Method of assignment	Synergetic teams	Hierarchic teams	Other teams	Total
Arbitrary assignment	31	17	1	49
Voluntary assignment	58	20	9	87
Other assignment method	16	10	26	52
Total	105	47	36	188
Cal. $\chi^2 = 47.694^{**}$	$\chi^2 .05, 4 \text{ d.f.} = 9.488$			
	$\chi^2 .01, 4 \text{ d.f.} = 13.277$			

grams is rejected. The chi square test of independence resulted in a chi square of 47.694 which is highly significant. The small cell, under other teams, is a factor in this test but because of the very high chi square the null hypothesis is rejected.

Results of a test for independence between synergetic and hierarchic teams and arbitrary and voluntary assignments were found not to be significant. It appears that "other" teams and "other" assignment methods are contributing factors to the highly significant chi square in Table 21. A closer look at this section of the table shows 72.2 percent of the "other" organizational type teams rely on assignment methods other than arbitrary or voluntary. This may be an

Table 22. Chi square contingency table for type of team organization and use of flexible grouping, flexible scheduling, and paraprofessional help

Organizational factors	Synergetic teams	Hierarchic teams	Other teams	Total
Did not use flexible grouping	34	15	7	56
Used flexible grouping	71	32	29	132
Total	105	47	36	188
Cal. $\chi^2 = 2.281$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$			
	$\chi^2 .01, 2 \text{ d.f.} = 9.920$			
Did not use flexible scheduling	79	26	25	130
Used flexible scheduling	26	21	11	58
Total	105	47	36	188
Cal. $\chi^2 = 6.040^*$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$			
	$\chi^2 .01, 2 \text{ d.f.} = 9.210$			
Did not use paraprofessionals	29	6	9	44
Used paraprofessionals	76	41	27	144
Total	105	47	36	188
Cal. $\chi^2 = 4.059$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$			
	$\chi^2 .01, 2 \text{ d.f.} = 9.210$			

important factor in determining association between method of teacher assignment and organizational design.

The null hypothesis that there is no relationship between the type of organizational design and the use of flexible student grouping, flexible scheduling, and paraprofessionals can be rejected only in part. From Table 22 it can be observed that the only significant chi square is that showing the association between organizational design and the use of flexible scheduling. Therefore, when the null hypothesis is restated to read that there is no association between the organizational team design and the use of flexible scheduling it can be rejected.

Table 23 shows a pattern similar to the chi square test results in Table 22. Only the flexible scheduling component of hypothesis six can be rejected. When it is stated that there is no association between method of assignment and use of flexible scheduling the hypothesis can be rejected. The chi square test reported in Table 23 shows a highly significant association. The reader is cautioned that there exists a small cell of two under the arbitrary assignment category using flexible scheduling. But because of the large calculated chi square the results are still believed to be significant.

Table 23. Chi square contingency table for method of teacher assignment and the use of flexible grouping, flexible scheduling, and paraprofessional help

Organizational factors	Arbitrary assignment	Voluntary assignment	Other method assignment	Total
Did not use flexible grouping	18	27	11	56
Used flexible grouping	31	60	41	132
Total	49	87	52	188
Cal. $\chi^2 = 3.049$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$	$\chi^2 .01, 2 \text{ d.f.} = 9.210$		
Did not use flexible scheduling	47	56	27	130
Used flexible scheduling	2	31	25	58
Total	49	87	52	188
Cal. $\chi^2 = 24.625^{**}$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$	$\chi^2 .01, 2 \text{ d.f.} = 9.210$		
Did not use paraprofessionals	9	26	9	44
Used paraprofessionals	40	61	43	144
Total	49	87	52	188
Cal. $\chi^2 = 3.811$	$\chi^2 .05, 2 \text{ d.f.} = 5.991$	$\chi^2 .01, 2 \text{ d.f.} = 9.210$		

Importance of Various Factors in Successful Programs

In Chapter I five specific questions were asked concerning the importance of the five organizational elements under investigation. In order to calculate the importance of these elements the 53 team program administrators were asked to rate the degree of importance of 13 elements considered important to the success of team teaching. The factors could be rated, "of great importance", "some importance", "little importance", "no importance", and "cannot say." These categories were assigned values of from four to zero.

The mean scores for the three grade level groups are shown in Table 24. The respondents of the three grade level classifications generally agreed that method of assignment, organizational design, and flexible grouping of students ranged from "some importance" (3.00) to "great importance" (4.00).

A difference of opinion was found when rating the use of flexible class schedule. The senior high educators rated it at 2.15, the junior high at 3.00, and the elementary respondents at 3.75. The elementary team administrators apparently believed the flexible schedule to be of greater importance than the senior high administrators. While all agreed that the use of paraprofessionals was not as important as many other factors, the elementary team teaching group rated it at 3.33 and the senior high group rated it

Table 24. Mean scores of 13 organizational factors as rated by the three grade level classifications

Organizational factors	Mean scores			
	Senior high N = 26	Junior high N = 15	Elementary N = 12	Total N = 53
Use of paraprofessional help for the teaching team	2.19	2.80	3.33	2.62
Parental cooperation in developing the team program	2.12	2.40	3.50	2.51
Flexible grouping of students	3.27	3.33	3.92	3.42
The use of large group instruction	3.31	3.00	2.75	3.09
The use of small group instruction	3.69	3.53	3.92	3.70
Independent study time for students	2.85	3.27	3.42	3.09
Adequate planning prior to starting a team teaching program	3.77	3.93	4.00	3.87
Use of a flexible class schedule	2.15	3.00	3.75	2.75
An orientation program for new team teachers	3.04	3.40	3.83	3.32
The method by which a teacher is assigned to a team	3.46	3.13	3.58	3.40
The type of organizational design used by the team	3.35	3.33	3.58	3.40

Table 24. (Continued)

Organizational factors	Mean scores			
	Senior high N = 26	Junior high N = 15	Elementary N = 12	Total N = 53
Adequate space designed for team teaching	3.42	3.53	3.25	3.42
Use of audio-visual equipment	3.58	3.27	3.58	3.49

at 2.19.

While all three groups believed flexible grouping to be important, the high school group rated large group instruction 3.31 while the elementary group gave it a 2.75 rating. The reverse was evident for independent study time. The mean for independent study time for elementary educators was 3.42 and it was 2.85 for high school educators.

The mean score for use of paraprofessionals by educators in nongraded schools was 3.75 on the 4-0 scale. This was the highest rating given for the use of paraprofessionals in any subdivision. The method of teacher assignment had a mean of 3.64 for the nongraded group. This mean was higher than any of the three grade level classifications means for the assignment factor. The nongraded group also rated flexible grouping and flexible scheduling as more important than did the graded school administrators (Table 25).

Table 25. Mean scores of graded and nongraded team program administrators

Organizational factors	Mean scores		Total N = 53
	Grade programs N = 42	Nongrade programs N = 11	
Use of paraprofessional help for the teaching teams	2.33	3.73	2.62
Parental cooperation in developing the team program	2.38	3.00	2.51
Flexible grouping of students	3.33	3.82	3.43
The use of large group instruction	3.17	2.82	3.09
The use of small group instruction	3.67	3.82	3.70
Independent study time for students	3.05	3.27	3.09
Adequate planning prior to starting a team teaching program	3.83	4.00	3.87
Use of a flexible class schedule	2.64	3.18	2.75
An orientation program for new team teachers	3.19	3.82	3.32
The method by which a teacher is assigned to a team	3.33	3.64	3.40
The type of organization design used by the team	3.40	3.36	3.40

Table 25. (Continued)

Organizational factors	Mean scores		
	Grade programs N = 42	Nongrade programs N = 11	Total N = 53
Adequate space designed for team teaching	3.48	3.18	3.42
Use of audio-visual equipment	3.55	3.27	3.49

As might be expected, those schools using paraprofessionals placed more importance on the use of paraprofessionals than did those programs where no team was using paraprofessional help. These same administrators rated flexible grouping of students, flexible scheduling, and organizational team design of more importance than those not using paraprofessionals (Table 26).

The number of programs using only traditional size classes made it difficult to compare the view of respondents using flexible grouping and those using traditional size classes. Those using flexible size grouping believed small group instruction to be most important, large group instruction to be next and independent study time the least important of the three aspects of flexible student grouping.

The respondents using both size classes indicated that small group instruction was the most important of the three

Table 26. Mean scores of 13 organizational factors as rated by team administrators using differing amounts of paraprofessional use

Organizational factors	Mean scores when paraprofessionals in a program are used by			
	No teams N = 13	Some teams N = 6	All teams N = 34	Total N = 53
Use of paraprofessional help for the teaching teams	1.38	2.17	3.18	2.62
Parental cooperation in develop- ing the team program	1.92	2.33	2.76	2.51
Flexible grouping of students	3.08	3.67	3.53	3.43
The use of large group instruction	3.00	2.83	3.18	3.09
The use of small group instruction	3.69	4.00	3.65	3.70
Independent study time for students	2.85	3.50	3.12	3.09
Adequate planning prior to starting a team program	3.69	3.84	3.94	3.87
Use of a flexible class schedule	1.92	3.50	2.94	2.75
An orientation program for new team teachers	3.38	3.00	3.35	3.32

Table 26. (Continued)

Organizational factors	Mean scores when paraprofessionals in a program are used by			
	No teams N = 13	Some teams N = 6	All teams N = 34	Total N = 53
The method by which a teacher is assigned to a team	3.54	3.67	3.29	3.40
The type of organizational design used by the team	3.38	3.17	3.44	3.40
Adequate space designed for team teaching	3.69	3.50	3.29	3.42
Use of audio-visual equipment	3.46	3.00	3.59	3.49

aspects of flexible grouping. This group also believed independent study time to be more important than large group instruction. In the total sample, large group instruction and independent study time both scored a 3.09 on the 4-0 scale and the mean for small group instruction was 3.70. Only adequate planning before starting a program was considered a more important factor than the use of small group instruction (Table 27).

Table 28 gives the mean scores of 13 organizational factors according to team administrators using different methods of scheduling. Those using modular type scheduling believed that the use of flexible class schedules was more important than those using a traditional schedule. Flexible class scheduling received a mean rating of 1.44 from educators using the traditional length periods and a 3.65 from those using modular length periods. This difference is impressive. Flexible grouping and the method of assignment were also rated higher by administrators in modular programs.

The respondents using the traditional type schedules rated the use of paraprofessionals as more important than those using modular programs. They also rated the type of organizational design as being more important than did those using the shorter length periods.

Persons using a voluntary assignment procedure rated the method of assignment higher than those using arbitrary

Table 27. Mean scores of 13 organizational factors as rated by team administrators using different class sizes

Organizational factors	Mean scores for different class sizes			
	Traditional N = 2	Flexible N = 25	Both N = 26	Total N = 53
Use of paraprofessional help for the teaching teams	3.50	2.92	2.27	2.62
Parent cooperation in developing the team program	2.00	2.64	2.42	2.51
Flexible grouping of students	2.00	3.44	3.54	3.43
The use of large group instruction	3.00	3.04	3.15	3.09
The use of small group instruction	3.50	3.60	3.81	3.70
Independent study time for students	3.50	2.76	3.38	3.09
Adequate planning prior to starting a team teaching program	4.00	3.76	3.96	3.87
Use of a flexible class schedule	1.00	2.92	2.73	2.75
An orientation program for new team teachers	2.00	3.40	3.35	3.32
The method by which a teacher is assigned to a team	2.00	3.32	3.58	3.40

Table 27. (Continued)

Organizational factors	Mean scores for different class sizes			
	Traditional N = 2	Flexible N = 25	Both N = 26	Total N = 53
The type of organizational design used by the team	2.50	3.36	3.50	3.40
Adequate space designed for team teaching	2.00	3.48	3.46	3.42
Use of audio-visual equipment	3.50	3.56	3.42	3.49

Table 28. Mean scores of 13 organizational factors for team administrators using different methods of scheduling

Organizational factors	Mean scores for those using different type schedules				
	Traditional N = 18	Modular N = 20	Both types N = 6	Other N = 9	Total N = 53
Use of paraprofessional help for the teaching teams	2.72	2.50	2.17	3.00	2.62
Parental cooperation in developing the team program	2.39	2.50	2.00	3.11	2.51
Flexible grouping of students	3.17	3.60	3.50	3.56	3.43
The use of large group instruction	3.17	3.00	3.34	3.00	3.09
The use of small group instruction	3.44	3.85	3.83	3.78	3.70
Independent study time for students	2.61	3.30	2.83	3.78	3.09
Adequate planning prior to starting a team teaching program	3.72	4.00	3.67	4.00	3.87
Use of a flexible class schedule	1.44	3.65	3.33	3.00	2.75
An orientation program for new team teachers	3.33	3.70	2.67	2.89	3.32
The method by which a teacher is assigned to a team	3.44	3.50	3.00	3.33	3.40

Table 28. (Continued)

Organizational factors	Mean scores for those using different type schedules				
	Traditional N = 18	Modular N = 20	Both types N = 6	Other N = 9	Total N = 53
The type of organizational design used by the team	3.67	3.20	3.50	3.22	3.40
Adequate space designed for team teaching	3.72	3.35	3.50	2.89	3.42
Use of audio-visual equipment	3.61	3.65	3.50	2.89	3.49

assignment practices. Both group means were between 3.00 and 4.00 concerning the assignment method. There was general agreement concerning the importance of the remaining four factors under investigation (Table 29).

The mean score for use of paraprofessionals by those using hierarchic type teams was 3.41 compared with a 2.39 for the persons using synergetic teams. Persons using hierarchic teams also rated flexible grouping as more important. Those using "other" type teams rated the use of flexible scheduling considerably lower than those using either synergetic or hierarchic type organizational designs (Table 30).

A correlation matrix, Table 31, was calculated in order to determine if there were any relationships between the 13 organizational factors with regard as to how the respondents rated them. A coefficient of correlation will indicate the degree of relationship between variables. A correlation coefficient $+1$ describes a perfect positive relation. A value of -1 indicates a perfect negative relation, and a value of 0 describes the absence of a relation.

Among the five factors under investigation there was only one significant relationship. That was between flexible grouping and flexible scheduling. An examination of the relationship between flexible grouping and the three components of flexible grouping revealed only one significant

Table 29. Mean scores of 13 organizational factors for teach administrators using different methods of teacher assignment

Organizational factors	Mean scores for those using different assignment methods				
	Arbitrary N = 10	Voluntary N = 26	Other N = 9	Mixed N = 8	Total N = 53
Use of paraprofessional help for the teaching teams	2.50	2.73	2.22	2.88	2.62
Parental cooperation in developing the team program	2.10	2.88	1.78	2.63	2.51
Flexible grouping of students	3.60	3.30	3.44	3.63	3.43
The use of large group instruction	3.10	3.04	3.00	3.38	3.09
The use of small group instruction	3.80	3.65	3.55	3.88	3.70
Independent study time for students	3.20	3.08	2.89	3.25	3.09
Adequate planning prior to starting a team teaching program	3.90	3.81	4.00	3.88	3.87
Use of flexible class schedule	2.70	2.62	2.78	3.25	2.75
An orientation program for new team teachers	3.40	3.15	3.33	3.75	3.32

Table 29. (Continued)

Organizational factors	Mean scores for those using different assignment methods				
	Arbitrary N = 10	Voluntary N = 26	Other N = 9	Mixed N = 8	Total N = 53
The method by which a teacher is assigned to a team	3.20	3.46	3.55	3.25	3.40
The type of organizational design used by the team	3.30	3.35	3.44	3.63	3.40
Adequate space designed for team teaching	3.60	3.42	3.33	3.25	3.42
Use of audio-visual equipment	3.60	3.50	3.11	3.75	3.49

Table 30. Mean scores of 13 organizational factors for team administrators using different team organizational designs

Organizational factors	Mean scores for those using different organizational designs				Total N = 53
	Synergetic N = 23	Hierarchic N = 12	Other N = 9	Mixed N = 9	
Use of paraprofessional help for the teaching teams	2.39	3.41	2.44	2.33	2.62
Parental cooperation in developing the team program	2.35	2.67	2.78	2.44	2.51
Flexible grouping of students	3.22	3.75	3.00	4.00	3.43
The use of large group instruction	3.26	3.00	2.67	3.22	3.09
The use of small group instruction	3.65	3.84	3.44	3.89	3.70
Independent study time for students	3.13	3.00	3.22	3.00	3.09
Adequate planning prior to starting a team teaching program	3.83	3.92	4.00	3.78	3.87
Use of flexible class schedule	3.04	2.92	1.89	2.67	2.75
An orientation program for new team teachers	3.57	3.33	3.00	3.00	3.32
The method by which a teacher is assigned to a team	3.43	3.58	3.22	3.22	3.40

Table 30. (Continued)

Organizational factors	Mean scores for those using different organizational designs				Total N = 53
	Synergetic N = 23	Hierarchic N = 12	Other N = 9	Mixed N = 9	
The type of organizational design used by the team	3.30	3.50	3.56	3.33	3.40
Adequate space designed for team teaching	3.52	3.50	3.11	3.33	3.42
Use of audio-visual equipment	3.61	3.58	3.22	3.33	3.49

correlation. A coefficient correlation of 0.426 was found between the means for small group instruction and independent study for students.

The importance of audio visual use is often believed to correlate with large group instruction. The results of this study showed a correlation between these two factors to be 0.161 which was not significant. Although there were several negative correlations in the matrix none were significant (Table 31).

Summary

In this chapter the findings of the study are reported. The team programs and schools from which they came are described. Characteristics of the individual teaching teams are also discussed. Chi square tests for independence were calculated to test the six hypotheses stated in Chapter I.

Significant associations were found between the three grade level classifications and the five organizational factors. Chi square tests were also tabulated between the five organizational factors. A significant association was found between the team organizational design and the method of assignment. The test for independence also showed significant association between method of assignment and flexible scheduling. Another significant association was found between the type of team organizational design and flexible scheduling.

Table 31. Coefficient correlation matrix for the correlation between the 13 organizational factors as rated by the 53 team program administrators

Organizational factors	Paraprofes- sional use	Parental cooperation	Flexible grouping	Large group instruction
Paraprofessional use	1.000			
Parental cooperation	0.421**	1.000		
Flexible grouping	0.083	0.154	1.000	
Large group instruction	-0.099	-0.093	-0.157	1.000
Small group instruction	-0.082	0.150	0.222	-0.018
Independent study time	0.079	0.309**	0.213	0.172
Adequate planning	0.259	0.266**	0.396**	-0.197
Flexible scheduling	0.120	0.150	0.316*	-0.206
Orientation program	0.156	0.211	0.121	-0.046
Assignment method	0.045	0.081	-0.027	-0.027
Organizational design	-0.167	0.242	-0.169	0.187
Adequate space	-0.116	0.050	-0.108	0.211
Audio visual use	0.145	-0.025	-0.085	0.161

Table 31. (Continued)

Organizational factors	Small group instruction	Independent study time	Adequate planning	Flexible schedule
Paraprofessional use				
Parental cooperation				
Flexible grouping				
Large group instruction				
Small group instruction	1.000			
Independent study time	0.426**	1.000		
Adequate planning	-0.060	0.473**	1.000	
Flexible scheduling	0.263	0.322**	0.298*	1.000
Orientation program	0.107	0.093	0.087	0.219
Assignment method	0.054	0.248	0.238	0.120
Organizational design	-0.181	0.131	-0.089	-0.127
Adequate space	0.102	0.085	-0.044	0.055
Audio visual use	-0.133	-0.058	0.106	0.024

Table 31. (Continued)

Organizational factors	Orientation program	Assignment method	Organizational design	Adequate space	Audio visual use
Paraprofessional use					
Parental cooperation					
Flexible grouping					
Large group instruction					
Small group instruction					
Independent study time					
Adequate planning					
Flexible scheduling					
Orientation program	1.000				
Assignment method	0.224	1.000			
Organizational design	-0.014	0.228	1.000		
Adequate space	0.249	0.453**	0.324**	1.000	
Audio visual use	0.229	0.087	0.210	0.382**	1.000

No significant associations were found between the method of teacher assignment and flexible grouping or use of para-professionals. Nor were significant results reported for team design and use of flexible grouping or paraprofessional assistants.

The mean scores for the 13 organizational factors as rated by the respondents were calculated and listed. The different means were then listed, reporting how persons using various organizational factors in successful team programs rated the use of the elements. Finally a correlation matrix was tabulated showing any relationship between the 13 factors as rated by the team administrators.

These data will be referred to in Chapter V when writing conclusions about the importance the five organizational factors have in developing successful team programs.

CHAPTER V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter summarizes the investigation. It reviews the need to identify important organizational factors which contribute to the development of successful team teaching programs. The findings of the study also are summarized. Conclusions are drawn from these findings and recommendations are made.

Summary of the Problem, Purpose, and Procedure

Much educational literature discusses the advantages of using teaching teams. Team teaching may be considered as a method of combining teachers' talents in an effort to improve instruction. At the same time much has been written about the organizational conditions necessary for starting a team program. A survey of the team teaching literature revealed many different organizational components which are cited as important in the development of a team teaching program. Research evidence either supporting or rejecting the use of the various organizational factors is meager.

The research literature discusses both elementary and secondary team programs. The same organizational factors often are discussed for all grade levels and equal importance is assigned to the factors without regard to grade level classification. Few authors suggest different organizational factors for different grade levels.

There did exist a need to identify the organizational factors used by successful team teaching programs and the relative importance those factors had to the development of a successful team program. The findings of such a study, it was believed, would be helpful to school administrators responsible for developing team teaching programs.

Because so many different organizational factors have been considered important for a team teaching program, five elements were selected to be studied. The five factors were: 1) method of teacher assignment, 2) use of flexible student grouping, 3) use of flexible scheduling, 4) organizational designs of teams, and 5) use of paraprofessional help.

The use of these five factors was examined in 188 individual teaching teams which were part of 53 team programs. The administrators of these 53 programs were also asked to rate the importance of 13 factors in order to determine the importance of the five organizational elements in the development of successful team teaching programs. The 13 selected elements were from organizational factors frequently reported in the literature as important in developing a team teaching program.

The sample was selected from team teaching programs which were identified in the literature as having exemplary team programs.

Summary of the Findings

Five null hypotheses were stated in Chapter I. These five null hypotheses were tested in an attempt to determine whether any association existed between the use of the organizational factors and grade level classifications. The significant associations were determined by the use of the chi square test for independence.

It was found that an association did exist between the grade level classification and the method of teacher assignment in successful programs. Over half of the elementary teams used a voluntary method of assignment; 38.2 percent of the junior high teams and 45.7 percent of the senior high teams used a voluntary method of selecting teachers for team assignments.

The senior high school programs used the arbitrary method of assigning teachers to teams more frequently than did the junior high or elementary teams.

Arbitrary assignment practices were used by 43.5 percent of the senior high teams, 12.8 percent of the elementary teams and only 5.5 percent of the junior high teams. "Other" methods of assignment were used mostly by junior high teams. There was a highly significant association between the grade level and the method of teacher assignment in this sample of team teaching programs.

The second null hypothesis was also rejected, since a

highly significant association existed between the organizational design and the grade level classifications. The senior high teams reported 68.3 percent using a synergetic type organizational design, 45.5 percent of the junior high teams reported using synergetic organization design. Junior high teams reported using "other" team designs in 47.3 percent of the cases.

The hierarchic team design was used most often by the elementary teaching teams; 51.3 percent of the elementary teams used this organizational design. The hierarchic type team was used by 24.5 percent of the senior high programs. Junior high teams were organized according to the hierarchic design least often with only 7.3 percent (four teams) reporting the use of the hierarchic type team.

Generally, the senior high schools favored using synergetic teams, the elementary schools favored use of hierarchic type teams, and the junior high schools appeared to organize their teams using neither the hierarchic nor the synergetic approach.

The third hypothesis stated that there is no association between grade levels and the use of flexible student grouping, flexible scheduling, and paraprofessionals in successful team teaching programs. This hypothesis was divided into three sub-hypotheses. First, it was hypothesized that no association existed between grade levels using flexible

student grouping. This part of hypothesis three was rejected. A highly significant association was found between grade level classifications and the use of flexible grouping. It appeared from this investigation that flexible grouping is used more by junior high and elementary teams than it is by senior high teams. Over 80 percent of the teams below the ninth grade used flexible student grouping and 50 percent of the senior high teams used flexible grouping.

Four components of flexible grouping were examined. They were: independent study time, small group instruction, large group instruction, and traditional size classes. Small group instruction was the most frequently used component. But when the "small group" was defined as a group with 15 or fewer students the small group frequency dropped.

One unexplained finding was that while the use of flexible grouping was found to discriminate significantly between grade level classifications; the relationships between the use of flexible grouping components and grade level classification were not found to be significant. An exception to this was the use of small group instruction using groups of 15 students or fewer.

One possible answer is that all grade levels used various components of flexible grouping equally except for the use of small group instruction. Therefore it may be the use of small group instruction which resulted in the

significant association between grade level and flexible student grouping.

At any rate, significant associations were found to exist between the use of small groups of under 15 students and grade level classifications. Elementary and junior high teams were more likely to use the small groups of 15 or fewer students than were the senior high teams. The elementary and junior high teams also reported using flexible scheduling to a greater degree than senior high schools.

The second sub-section of hypothesis three stated that no association exists between the use of flexible scheduling and grade level classification. This was also rejected.

A highly significant association was found to exist between the grade level classification and the use of flexible scheduling, modular-length periods and traditional-length periods.

Most of the senior high and junior high teams reported the use of a traditional length period. Only 34 of the senior high teams used a modular length period and only two of the junior high teams used modular type periods. The elementary teams did not depend entirely on either the traditional or the modular period to provide a flexible setting. The K-6 teams were more apt to use a system in which the individual students and teachers designed their own time schedule for instruction.

Part three of the third hypothesis stated that there is no association between grade level classification and the use of paraprofessionals in successful teaching teams. Examination of the use of paraprofessionals in the respective grade level classifications, however, revealed a highly significant association. It appears that the elementary teams were most likely to use some paraprofessional help. The senior high schools were least likely to provide teams with paraprofessionals.

A chi test for independence indicated in a highly significant association between grade level classification and use of paraprofessionals. Highly significant associations were also reported between the use of "aides or associates", "volunteers", and "other" paraprofessionals and grade level classifications. No significant association was found between grade level classification and the use of "clerk-typist" and "interns".

Both elementary and junior high schools used teacher aides or associates with over 60 percent of their teams. Volunteer paraprofessionals were used most commonly at the elementary level and the "other" paraprofessionals were found most likely to be used by junior high teams.

All three parts of the third hypothesis, therefore were rejected. The first three hypotheses were also examined using the organizational classifications, graded and nongraded. There does appear to be a highly significant association

between method of teacher assignment and the graded or non-graded approach to instruction. The nongraded team approach was more likely to use a voluntary assignment method.

There also appears to be a highly significant association between the nongradeness of a team and the organizational team design. Teams operating under a graded system were found to favor the use of synergetic teams while the nongraded teams did not favor either synergetic or hierarchic teams. A highly significant association was found between the use of flexible student grouping and grade level and a significant association existed between flexible scheduling and grade level classification. While flexible student grouping was popular with both the graded and nongraded teams the nongraded teams were more likely to use flexible grouping. Flexible scheduling was more popular with nongraded teams. Less than 25 percent of the graded teams used flexible scheduling and over 50 percent of the nongraded teams used flexible scheduling. No significant association existed between the use of paraprofessionals and graded and nongraded teams.

Null hypothesis number four, that no association exists between the type of organizational team design and the method of team teacher assignment, was rejected. It was found that the synergetic teams were more likely to use a voluntary assignment practice. But the hierarchic type teams also placed emphasis on the use of a voluntary method

of teacher assignment. Unexpectedly, most of the "other" type teams also used some "unique" type of teacher assignment practice. There did appear to be some association between the type of team used and the method used in assigning teachers to the teams.

The fifth null hypothesis stated that there is no association between the type of organizational design and the use of flexible student grouping, flexible scheduling and paraprofessionals. No significant association was found to exist between the organizational team design and the use of flexible student grouping and the use of paraprofessionals as measured by the chi square test for independence. Nevertheless, a significant association was found between the use of flexible scheduling and the organizational team design. The hierarchic teams were more likely to use flexible scheduling than either the synergetic or "other" type teams. The fifth null hypothesis could be rejected only in part.

The synergetic teams were found much more likely than not to use a flexible schedule. A greater percentage of the hierarchic teams used flexible scheduling than did the synergetic type teams. It should be remembered, however, that most elementary teams were hierarchic and many of the elementary teams used flexible scheduling. This no doubt was a factor in the significant association between the type of organizational team design and the use of flexible scheduling.

The sixth, and final, null hypothesis stated that there is no association between the method of teacher assignment to teams and the use of flexible student grouping, flexible scheduling, and paraprofessionals in successful team teaching programs. No associations were found to exist between the method of teacher assignment and the use of flexible grouping or the use of paraprofessionals.

As was the case in testing the fifth null hypothesis, a significant association was found between the method of assignment and the use of flexible scheduling. It was reported that 95.9 percent of the teams using an arbitrary assignment practice did not use flexible scheduling. Roughly 65 percent of the teams using a voluntary method of assignment were not using flexible scheduling and 51.9 percent of the "other" assignment teams were not using flexible scheduling. The sixth null hypothesis could be rejected only in part.

In an attempt to determine the relative importance the five organizational factors had in developing a successful team program, the 53 team administrators were asked to rate the importance of 13 organizational factors. The respondents rated the 13 factors as being "of great importance", "of some importance", "of little importance", "of no importance", or "cannot say". These ratings were placed on a four to zero scale. The ratings of the five investigated factors were examined.

Flexible grouping of students was considered by elementary administrators as the most important of the five investigated factors. Senior high administrators believed flexible grouping to be important but they rated both the method of assignment and the team organizational design to be more influential in developing a team. Flexible scheduling was rated as the least valuable factor of the five by senior high administrators. Junior high and elementary administrators agreed that the use of paraprofessional help was the least important of the five factors under investigation.

When the five factors were analyzed according to the ratings given by graded and nongraded program administrators the nongraded administrators rated flexible grouping of students as the most important and the graded school administrators rated the teams organizational design as the most important factor.

Team teaching administrators tended to give higher rating to the organizational factors used by their teams. This is observable in the tabulated list of rating means in Table 32.

Flexible student grouping, assignment method, and team organizational design generally received higher ratings regardless as to how the administrators were subdivided. Paraprofessional use and flexible scheduling were usually rated of less importance.

Table 32. Rating means of the five organizational factors

	Paraprofessional use
Programs using no paraprofessionals	1.38
Programs where all teams used paraprofessionals	3.18
Programs using only traditional size classes	3.50
Programs using only flexible grouping	2.92
Programs using only traditional length periods	2.72
Programs using only flexible type schedules	2.50
Programs using only arbitrary assignment methods	2.50
Programs using only voluntary assignment methods	2.73
Programs using only synergetic teams	2.39
Programs using only hierarchic teams	3.41

Flexible grouping	Flexible schedules	Assignment methods	Team design
3.08	1.92	3.54	3.38
3.53	2.94	3.29	3.44
2.00	1.00	2.00	2.50
3.44	2.92	3.32	3.36
3.17	1.44	3.44	2.67
3.60	3.65	3.50	3.20
3.60	2.70	3.20	3.30
3.30	2.62	3.46	3.35
3.22	3.04	3.43	3.30
3.75	2.92	3.58	3.50

A coefficient correlation matrix of the administrator's rating of the 13 factors revealed few significant relationships. This was especially true of the five items specifically under investigation in this study. Only the use of flexible student grouping and the use of flexible scheduling showed any significant relationship.

Limitations

One hundred and twelve programs were identified as exemplary teams by Trump and Baynham (101), Beggs (10), Davis (29), Bunyan (19), Shaplin and Olds (88), Polos (84), and Chamberlin (23). It was the original intent of this investigation to examine each of these programs, however, examination of the returned questionnaires revealed that 24 of the original 112 programs no longer used team teaching in their schools. Administrators of the 88 remaining programs were surveyed, 53 returned the questionnaire. The small number of team programs under investigation was a limitation.

Another limitation was the use of a purposive sample. Generalizations concerning team programs outside this sample cannot be made. Only conclusions concerning the team program in the sample can be justified.

Only teams giving instruction to students in grades K - 12 were investigated. College teaching teams and "special" instructional type teams were omitted because of the many organizational factors employed by these teams which would

not be used at the elementary or secondary level.

Many organizational factors are reported in the literature to be of importance in the development of teaching teams. Only five organizational factors relating to elementary and secondary teams were studied.

The cost of conducting personal interviews was considered prohibitive for this study because of the wide geographical locations of the team teaching programs. Therefore, a mailed questionnaire was used. Some detailed information therefore was not collected which the interview technique might have revealed.

Conclusions

This study was intended to identify the importance of five organizational factors in the development of team teaching programs. Specific questions were raised in Chapter I. These questions will now be discussed.

1. Is the method of teacher assignment an important organizational factor in the development of a successful team teaching program?

It can be concluded that teacher assignment practices are of more importance for elementary teams than for secondary teams. Elementary administrators rated the method of teacher assignment higher than did the secondary administrators. Perhaps more significant is the finding that the elementary teams used hierarchic type teams more than secondary team

programs and the elementary teams used the voluntary method of teacher assignment in filling team vacancies. It seems logical to assume from these findings that the elementary administrators believe volunteers are more likely to work successfully in the more complicated hierarchic type organizational design.

The secondary administrators rated the assignment of teachers to teams as of some consequence but they were as likely to arbitrarily assign teachers to teams as they were to ask for team teaching volunteers. The junior high administrators rated the importance of assignment practices lower than either senior high or elementary administrators. It was found that the junior high teams were the most likely to develop their own practices of assignment. Teacher assignment, while not of paramount importance, was found to be of some importance in the development of successful team teaching programs.

2. Is flexible grouping of students an important factor in the development of successful team teaching programs?

Yes. Flexible grouping of students was the one factor under investigation which was revealed consistently as an important factor. Flexible grouping was used by a majority of teams. And, regardless of how the findings were subdivided, flexible grouping was found to be extensively used

and consistently highly rated.

Small group instruction was considered to be the most important component of flexible grouping. Small group instruction was also used most often as an instructional mode. Large group instruction and independent study time, while rated as of some importance, were not used as greatly as the small group instruction.

Over half of the investigated teams used the traditional size groups in conjunction with small group instruction, large group instruction and independent study time. This suggests the need to provide traditional size groups as well as small and large groups. It is believed that the use of this additional size group adds flexibility to the grouping of students.

While findings of this study suggest the need for flexible student grouping in the development of successful team programs it should be pointed out that having two teachers responsible for a group of students will perhaps result in dividing students into different size groups for instruction. It is difficult to imagine several teachers responsible for a group of students without the teachers grouping the students in various sizes for different aspects of instruction. Thus, flexible grouping may be not a choice but rather a built-in component of team teaching.

3. Is flexible class scheduling an important factor in the development of a successful team teaching program?

Flexible scheduling is important for the elementary teams and the junior high teams. It may be of importance for senior high teams. In support of the position that flexible scheduling is important for junior high and elementary teams, it was found that these teams used flexible scheduling more and rated it more highly than did the senior high teams. Senior high team administrators reported using few flexible schedules and rated it low in importance in the development of a team program.

One reason for the limited use of flexible scheduling at the senior high level may be related to the size of the school. Most of the senior high schools in the sample had large enrollments. Possibly the larger school is less likely to create a flexible schedule for only that part of the school program which is using team teaching. (One exception to this argument was found in the study. A large high school reported that they were using a highly individualized program whose schedule was flexible. Unfortunately, the questionnaire returned by this school was incomplete and could not be used in calculating the results of this study.)

Flexible scheduling, while important for junior high programs and elementary programs, is not important in the development of a successful senior high team. The limited use of flexible scheduling for high schools found in this study was also reported in the Belleau study (11).

4. Is the organizational design of the team an important factor in the development of a successful team teaching program?

Administrators regardless of grade-level, rated organizational team design between "of some importance" and "of great importance". Furthermore, the elementary programs favored the use of a hierarchic type team while the senior high programs favored the use of a synergetic team. It is interesting that the junior high programs used neither the synergetic type team nor the hierarchic type team. They developed their own respective organizational team designs.

It is concluded from this observation that the senior high programs are more likely to have nonstructured teams. It seems reasonable that when a person is arbitrarily assigned to a team he will desire latitude in his teaching style. He will desire the freedom because he had little part in the decision as to his teaching assignment. The synergetic team would give a person more latitude to function than the hierarchic team. It seems likely, therefore, that administrators using synergetic type teams will arbitrarily assign teachers to teams.

At the elementary level the more structured hierarchic teams were used more frequently. Voluntary methods of assignment were also more commonly used at the elementary level. It is concluded that at the elementary level the

administrators believe it desirable to let the teachers volunteer for the more structured team setting rather than arbitrarily assign members to such teams.

Again the junior high teams appeared to "go their own way" by developing teams which were neither hierarchic nor synergetic. They were also more likely to develop their own methods of teacher assignment.

It appears that with each type of team organizational design a different method of assignment is used. The different team designs are also used at different grade levels. It appears that the team's organizational design is important in the development of a team as it relates to the grade level and the method of teacher assignment used.

5. Is the use of paraprofessionals an important factor in the development of a successful team program?

As might be expected, the use of paraprofessionals is considered important by teams using paraprofessionals and considered not important by teams not using paraprofessionals. Elementary team program administrators and the nongraded team program administrators believed the use of paraprofessionals to be more important than other subgroups. Elementary and nongraded teams also had more programs that used paraprofessionals.

It was not surprising that those using hierarchic type teams believed paraprofessionals to be more important than

those using synergetic teams. This might be expected since hierarchic teams more likely assign differentiated roles to team members.

The one type of paraprofessional found employed by most teaching teams was the clerk-typist. This finding supports Bunyan's finding (19) that secretarial help was used by successful teaching teams. The clerk-typist paraprofessionals were used at all grade levels.

It was disappointing to find the use of the paraprofessionals not considered of great importance in the successful development of team teaching. In fact, the use of paraprofessional help was rated as the least important of the 13 organizational factors.

In brief, it is concluded that:

1. Teacher assignment methods are of some importance and should receive considerable attention when developing a voluntary hierarchic elementary team.
2. Flexible grouping of students is very important and must be considered when developing a team teaching program.
3. Small group instruction is the most important component of flexible student grouping and should be considered when developing a team program.
4. Large group instruction and independent study time are of some importance in developing a successful team program.

5. The use of traditional size classes is another dimension of flexible grouping in many successful team teaching programs.
6. Flexible scheduling may not be as important for the development of successful senior high team teaching programs as was once thought. It does appear to be important at both elementary and junior high levels in the development of successful team programs.
7. Organizational team designs are of some importance in the development of successful team programs. The method of assignment and the grade level of the team must be considered when developing the team design. Arbitrary assignment procedures appear to be used with synergetic senior high teams and voluntary assignment practices to be used with hierarchic elementary teams. Junior high teams are more likely to develop their own respective team organizational designs using their own method of teacher assignment.
8. While it may be desirable to have paraprofessionals in the development of a team program their use does not appear to be of much importance in the development of a successful program.

Discussion and Recommendations

Twenty-four of the identified programs had discontinued all team teaching in their schools. This was unexpected since these programs had been identified as exemplary team teaching programs in the literature. Many of the programs consisted of only a few operating teams. It was also found that many of the senior high team teaching programs operated without using flexible schedules.

Nevertheless, the following recommendations are made to team administrators and teachers charged with the responsibility of developing a team teaching program.

1. Flexible student grouping should be an organizational factor used when developing a team teaching program.
2. Teachers assigned to team teach must be educated in the use of the various facets of flexible student grouping. All team teaching instructors should be skilled in the use of small group techniques.
3. The use of the traditional class size group should be used as an instructional mode to increase the flexibility of the program.
4. Provisions for flexible scheduling are important when developing junior high or elementary teams.
5. Careful selection of team teachers is recommended. The procedure of having team members approve team replacements is encouraged.

6. Models and guides can best be written for particular grade levels using particular types of organizational team designs. The hierarchic team design is suggested for elementary teams. Synergetic teams are recommended for senior high teams.
7. Administrators initiating team programs should use voluntary teacher assignment practices if developing a hierarchic organizational team design.
8. Hierarchic teams should incorporate the use of paraprofessional assistants as members of the team.
9. Adequate planning prior to starting a team teaching program must accompany the development of a team program.

Recommendations for further study

Several possibilities for additional research are suggested by the results of this investigation. A detailed case-study of successful team programs could be undertaken. Such a study would yield its best results if a researcher were to observe over a period of five years or more the development and growth of a team program in a school. The growth of a team teaching program was not considered as a factor in this study. It is now felt that the growth of a program may help determine the total program's success. If a school starts with one teaching team and six years later has only one teaching team the success of the team teaching

program may be questioned. But if a school starts with one teaching team and six years later there are many teaching teams, then growth obviously has occurred. Under a case study this growth could be observed.

Another study could be undertaken to study the 24 teams which were reported in the literature as having exemplary teams but which have discontinued their programs. It would be worthwhile to find the reasons why these teams failed.

A comparison study could be made between continuing teams and discontinued teams. Such a study was undertaken for successful and unsuccessful team programs in California (11). A nationwide comparison study of successful and unsuccessful team programs, although expensive, would prove valuable.

This study indicates some associations between organizational design, grade level using organizational factors, and the method of teacher assignment. A study could be conducted comparing these three factors in order to determine the associations. One such study might examine the junior high teams use of "other" types of team design and "other" methods of teacher assignment.

An experimental study using specific factors in one team and controlling for those factors in another team might be worthwhile. Such a study would probably require several years in order to study the effects of the different organiza-

tional factors over a significant time span.

This study could be replicated. If similar results from an identical study, using similar but different teams, were found then generalizations to similar teams would be more valid. A third or fourth replicated study would increase the possibilities of making generalizations outside the samples.

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APPENDIX A. AN INVESTIGATION OF ORGANIZATIONAL FACTORS
IN SUCCESSFUL TEAM TEACHING PROGRAMS

AN INVESTIGATION OF ORGANIZATIONAL FACTORS
IN SUCCESSFUL TEAM TEACHING PROGRAMS

This questionnaire is divided into three sections. Part I gathers Vital Information about the school. Part II is concerned with different practices which may be used in conjunction with a team teaching program - Practices used with Teaching Teams. Part III gathers information about what you believe to be important in the development of a successful team teaching program - The Importance of Different Practices and Team Teaching.

Please have this questionnaire completed by the school administrator responsible for the supervision of the team teaching program.

XX

PART I - Vital Information

1. Name of the school district _____
2. Position of the person completing the questionnaire _____
3. Is this a graded or nongraded school? (Circle one) GRADED NONGRADED
4. What grade level(s) attend school in this building? (Circle appropriate grades. If this is a nongraded school, please answer as if the students were attending a graded school.)

K	1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	---	----	----	----
5. What grade level(s) receive all of their instruction from teaching teams? (Circle appropriate grades. If this is a nongraded school, please answer as if the students were attending a graded school.)

K	1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	---	----	----	----
6. What grade level(s) receive part, but not all, of their instruction from teaching teams? (Circle appropriate grades. If this is a nongraded school, please answer as if the students were attending a graded school.)

K	1	2	3	4	5	6	7	8	9	10	11	12
---	---	---	---	---	---	---	---	---	---	----	----	----
7. This school is classified as (Circle one) Public Private Parochial Other_____
8. How many students attend school in this building? _____
9. How many teachers are employed full time in this building? _____
10. If this school uses paraprofessional help for teachers, how many full-time (or equivalent to full-time) paraprofessionals are working in this building? _____
(Definition for paraprofessional in this study is on page 2.)
11. What is the total number of teachers involved in team teaching in this building?_____
12. How long has this particular school had a continuous team teaching program?
Consider the current year as one year. (Circle one)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	_____
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	-------

PART II - Practices used with Teaching Teams

Please answer the questions in Part II as they relate to the teaching teams which have been in continuous operation for three years or more in this school.

If you have not had a teaching team in continuous operation for three years or more please check here _____, complete Part III, and return the questionnaire. Thank you.

If you have one or more teams in continuous operation for three years or more, please complete Part II. Complete Part II for only those teams which have been in continuous operation for three years or more. Consider the current year as one year.

XX

Because of the possible differences in definitions of terms, the following general definitions are used in this investigation. Please refer to these definitions when answering this questionnaire.

Team Teaching is when two or more professional teachers, working together with or without paraprofessional help, assumes joint responsibility for all or part of the instruction of a common group of students.

Paraprofessionals are persons other than teachers or school administrators who volunteer or are employed to assist the teachers. Paraprofessionals might be teacher aides, volunteer mothers, interns, teacher associates, teacher clerks, etc.

A traditional size class is that size of group, believed by the respondent, to be used if a single approximately standard size grouping of students was used throughout a school.

Flexible student grouping is defined as an instructional program in which students meet in large groups, small groups or traditional sized classes, and work independently at various times in their normal schedule.

Large group instruction is a situation in which two or more traditionally-sized classes meet as a single group.

Small group instruction is an instructional situation in which the group size is smaller than a traditionally sized class.

Independent study time is considered to exist when a student, during his normal schedule, has the opportunity to study by himself on school projects, course work, etc. Flexible class scheduling exist when class periods vary in length of meeting time during the day or week.

Organizational team design refers to the internal organization of the team and might be either "synergistic" or "hierarchical".

Synergistic type teams are those in which the teachers cooperate as professionals equals without a permanently designated team leader. These teams are sometimes called "cooperative" or "associative" teams.

Hierarchical type teams are those teams organized with a division of rank among the teachers of the team. These teams have an official team leader.

Please complete the chart on the next page for those teaching teams which have been in continuous operation for three or more years. Write numbers in the columns for questions 1, 2, 3, 4, 5, 6e, 7b and 7e when appropriate. Please place check marks in columns for the remaining questions when appropriate. Thank you.

PART II - Practices used with Teaching Teams

Write in the subject and grade of team. →

	Example Grade Level	Example Grade Level	1 Team Grade Level	2 Team Grade Level	3 Team Grade Level	4 Team Grade Level	5 Team Grade Level	6 Team Grade Level	7 Team Grade Level	8 Team Grade Level
1. Number of teachers in the team	2	3								
2. Number of students assigned to team	125	70								
3. Number of paraprofessionals in team	2	1 1/2								
4. Number of years team has operated	5	3								
5. Types of paraprofessionals in teams	XX									
a. Uses paid clerical/typing help	✓									
b. Uses interns supplied by a college		✓								
c. Uses teacher aides or associates	✓									
d. Uses volunteer paraprofessionals										
e. Uses other paraprofessionals *										
6. Types of student grouping used	XX									
a. Uses traditional size classes		✓								
b. Uses flexible student grouping	✓									
c. Uses large group instruction	✓									
d. Uses small group instruction	✓									
e. Average no. pupils per small group	7									
f. Uses independent study time	✓									
7. Types of scheduling used	XX									
a. Uses traditional length period		✓								
b. If traditional, how many minutes?		45								
c. Uses flexible class scheduling	✓									
d. Uses modular scheduling	✓									
e. If modular, how many minute module?	20									
f. Uses other type scheduling **										
8. Types of teacher assignment	XX									
a. Team teachers arbitrary assigned	✓									
b. Teachers volunteer for team assign.		✓								
c. Team approves team replacements										
d. Other assignment practices #										
9. Type of organizational team design	XX									
a. Use synergetic type team design		✓								
b. Use hierarchic type team design	✓									
c. Use other type team design ##										

* 5e Explain if checked

**7f Explain if checked

8d Explain if checked

##9c Explain if checked

PART II - Practices used with Teaching Teams

Write in the subject and grade of team. →

	9 Team Grade level	10 Team Grade level	11 Team Grade level	12 Team Grade level	13 Team Grade level	14 Team Grade level	15 Team Grade level	16 Team Grade level	17 Team Grade level	18 Team Grade level
1. Number of teachers in the team										
2. Number of students assigned to team										
3. Number of paraprofessionals in team										
4. Number of years team has operated										
5. Types of paraprofessionals in teams	XX									
a. Uses paid clerical/typing help										
b. Uses interns supplied by a college										
c. Uses teacher aides or associates										
d. Uses volunteer paraprofessionals										
e. Uses other paraprofessionals *										
6. Types of student grouping used	XX									
a. Uses traditional size classes										
b. Uses flexible student grouping										
c. Uses large group instruction										
d. Uses small group instruction										
e. Average no. pupils per small group										
f. Uses independent study time										
7. Types of scheduling used	XX									
a. Uses traditional length period										
b. If traditional, how many minutes?										
c. Uses flexible class scheduling										
d. Uses modular scheduling										
e. If modular, how many minute module?										
f. Uses other type scheduling **										
8. Types of teacher assignment	XX									
a. Team teachers arbitrary assigned										
b. Teachers volunteer for team assign.										
c. Team approves team replacements										
d. Other assignment practices #										
9. Type of organizational team design	XX									
a. Uses synergetic type team design										
b. Uses hierarchic type team design										
c. Uses other type team design ##										
* 5e Explain if checked										
**7f Explain if checked										
# 8d Explain if checked										
##9c Explain if checked										

PART III - The Importance of Different Practices and Team Teaching

Please check the degree of importance you believe the following factors have had in making team teaching a successful practice in this school.

Check your response to the right of each statement.

	Great Importance	Some Importance	Little Importance	No Importance	Can Not Say
1. Use of paraprofessional help for the teaching team.	—	—	—	—	—
2. Parental cooperation in developing the team program.	—	—	—	—	—
3. Flexible grouping of students.	—	—	—	—	—
4. The use of large group instruction.	—	—	—	—	—
5. The use of small group instruction.	—	—	—	—	—
6. Independent study time for students.	—	—	—	—	—
7. Adequate planning prior to starting a team teaching program.	—	—	—	—	—
8. Use of a flexible class schedule.	—	—	—	—	—
9. An orientation program for new team teachers.	—	—	—	—	—
10. The method by which a teacher is assigned to a team.	—	—	—	—	—
11. The type of organizational design used by the team.	—	—	—	—	—
12. Adequate space designed for team teaching.	—	—	—	—	—
13. Use of audio-visual equipment.	—	—	—	—	—

Please list additional factors you believe important in the development of a successful team teaching program.

(Continued on next page)

PART III - The Importance of Different Practices and Team Teaching

Please explain, in a paragraph or two, reasons why you believe the team teaching program in this school has been successful.

Lined area for writing the response.

Please check here if you wish a summary of this study's findings _____

THANK YOU FOR YOUR COOPERATION

Return to: Joseph Millard
Administrative Intern
Polk County Board of Education
112-116 Eleventh Street
Des Moines, Iowa 50309

APPENDIX B. SELECTED SCHOOLS WITH TEAM TEACHING PROGRAMS

SELECTED SCHOOLS WITH TEAM TEACHING PROGRAMS

The following schools have been identified by Beggs (10), Bunyan (19), Chamberlin (23), Davis (29), Polos (84), and Trump and Baynham (101) as having successful team teaching programs.

School	Beggs	Bunyan	Chamberlin	Davis	Polos	Trump and Baynham
Senior High School						
El Dorado High School El Dorado, Arkansas	X					
Verdugo Hill High School Tujunga, California					X	
McClymonds High School Oakland, California					X	
Freemont High School Sunnyvale, California	X				X	
Will Crawford High School San Diego, California	X					X
Abraham Lincoln High School San Diego, California	X					X
Lincoln High School Stockton, California			X			
Arvada West High School Arvada, Colorado			X			X

School	Beggs	Bunyan	Chamberlin	Davis	Polos	Trump and Baynham
Wheat Ridge High School Wheat Ridge, Colorado						X
Alameda High School Alameda, Colorado						X
Bear Creek High School Bear Creek, Colorado						X
Evergreen High School Evergreen, Colorado						X
Golden High School Golden, Colorado						X
Jefferson High School Jefferson, Colorado						X
Lakewood High School Lakewood, Colorado						X
Nova High School Fort Lauderdale, Florida		X		X		
Melbourne High School Melbourne, Florida		X				
Lakeview High School Decatur, Illinois	X		X			X
Ridgewood High School Norridge, Illinois	X	X	X	X	X	X
Homewood-Flossmoor High School Flossmoor, Illinois			X			
Rich East High School Park Forest, Illinois	X	X	X			

School	Beggs	Bunyan	Chamberlin	Davis	Polos	Trump and Baynham
Evanston Township High School Evanston, Illinois		X	X		X	X
Arlington High School Arlington Heights, Illinois						X
Prospect High School Prospect Heights, Illinois						X
J. Sterling Morton High School Cicero, Illinois						X
Mattoon High School Mattoon, Illinois	X					X
Glenbrook High School Northbrook, Illinois						X
Taylorville High School Taylorville, Illinois						X
Chicago University Lab School Chicago, Illinois		X				X
Rich Central High School Park Forest, Illinois		X				
Glenbrook South High School Glenview, Illinois		X				
Bloom Township High School Bloom Township, Illinois		X				
W. P. Chrysler High School New Castle, Indiana			X			
Penn High School Mishawaka, Indiana		X				

School	Beggs	Bunyan	Chamberlin	Davis	Polos	Trump and Baynham
Newton High School Newton, Massachusetts	X	X	X		X	
Wayland High School Wayland, Massachusetts		X			X	
Newton South High School Newton Center, Massachusetts		X			X	
Franklin High School Livonia, Michigan			X			
Holland High School Holland, Michigan	X					
Muskegon High School Muskegon, Michigan				X		
John A. Johnson High School St. Paul, Minnesota					X	
Syosset High School Syosset, New York						X
Amherst Central High School Buffalo, New York	X					
East Irondoquoit High School Rochester, New York	X					
Williamsville Central High School Williamsville, New York	X					
Jamaica High School Jamaica, New York		X				
Monarch Park High School Toronto, Ontario, Canada		X				

School	Beggs	Bunyan	Chamberlin	Davis	Polos	Trump and Baynham
Kent State University School Kent, Ohio			X			
Solon High School Solon, Ohio	X		X			
Mayfield High School Cleveland, Ohio			X	X		
Brecksville High School Brecksville, Ohio	X			X		
Roosevelt High School Portland, Oregon		X				
Wilson High School Portland, Oregon		X				
John Marshal High School Portland, Oregon		X	X			
Easton Area High School Easton, Pennsylvania		X	X		X	
North Campus High School Abington, Pennsylvania		X				
Snyder Senior High School Snyder, Texas						X
S. P. Waltrip High School Houston, Texas	X					
Hurricane High School Hurricane, Utah					X	X
Duchesne High School Duchesne, Utah						X

School	Beggs	Bunyan	Chamberlin	Davis	Polos	Trump and Baynham
Altamont High School Altamont, Utah						X
St. George High School St. George, Utah						X
Joe E. Ferris High School Spokane, Washington			X			
Wisconsin Heights High School Mazomanie, Wisconsin						X
Central University High School Madison, Wisconsin						X
Selected Junior High Schools						
St. Michael Junior High School Calgary, Alberta, Canada			X			
Mabel E. O'Farrell Junior High San Diego, California	X		X			X
Samuel Gompers Junior High School San Diego, California						X
Horace Mann Junior High School San Diego, California						X
Chemawa Junior High School Riverside, California					X	
Eastmont Junior High School Montebello, California					X	
Griffin Junior High School Los Angeles, California	X					

School	Beggs	Bunyan	Chamberlin	Davis	Polos	Trump and Baynham
Alfred Plant Junior West Hartford, Connecticut	X		X			
Brookside Junior High Sarasota, Florida	X					
Lakeview Junior High School Decatur, Illinois	X					X
Jefferson Junior High School Decatur, Illinois			X			
Barrington Middle School Barrington, Illinois			X			
Ben Davis Junior High School Indianapolis, Indiana			X			
University Junior High School Bloomington, Indiana	X					
Muzzey Junior High School Lexington, Massachusetts	X					
Newton Junior High School Newton, Massachusetts	X					
Meadowbrook Junior High School Newton Center, Massachusetts		X				
Howard B. Mattlin Junior High Plainview, New York			X			
Fox Lane School Bedford, New York	X					
Williamsville Junior High School Williamsville, New York	X					

School	Beggs	Bunyan	Chamberlin	Davis	Polos	Trump and Baynham
William T. Gordon Junior High Coatesville, Pennsylvania	X					
Snyder Junior High School Snyder, Texas						X
Roosevelt Junior High School Roosevelt, Utah	X					X
Wahlquist Junior High School Ogden, Utah	X		X			
Starbuck Junior High School Racine, Wisconsin		X				
Selected Elementary Schools						
Lula Walker Elementary School Tucson, Arizona		X				
Bancroft Elementary School Walnut Creek, California			X			
Dundee Elementary School Greenwich, Connecticut			X		X	
Fox Run School Norwalk, Connecticut	X					
Anton Dvorak Elementary School Chicago, Illinois		X				
University School Bloomington, Indiana			X			
Lincoln Elementary School Cedar Falls, Iowa	X					

School	Beggs	Bunyan	Chamberlin	Davis	Polos	Trump and Baynham
Fairview Elementary School Auburn, Maine			X			
Bushey Drive Elementary School Montgomery County, Maryland		X				
Franklin Elementary School Lexington, Massachusetts	X		X			
Evergreen Elementary School Birmingham, Michigan			X			
Maple Road Elementary School Williamsville, New York	X					
Lechner Elementary School Berea, Ohio	X					
LaGrange Elementary School Toledo, Ohio			X			
Fairfax Elementary School Mentor, Ohio			X			
Sylvania-Whiteford School Sylvania, Ohio			X			
Moreland Elementary School Shaker Heights, Ohio				X		
Chestnut Elementary School North Olmsted, Ohio				X		
Lewis Sands Primary Chargin Falls, Ohio				X		
Oakleaf Elementary School Pittsburgh, Pennsylvania			X			

School	Beggs	Bunyan	Chamberlin	Davis	Polos	Trump and Baynham
Goodland Elementary School Racine, Wisconsin		X				
Washington Elementary School Madison, Wisconsin		X				

APPENDIX C. LETTER ACCOMPANYING QUESTIONNAIRE

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY
Ames, Iowa 50010

COLLEGE OF EDUCATION
PROFESSIONAL STUDIES

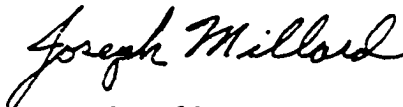
Dear Principal:

As a Ph.D. candidate in Educational Administration at Iowa State University I am conducting an investigation of organizational factors which contribute to successful team teaching programs. Your school has been selected because it has appeared in educational literature as having an exemplary team teaching program.

Knowing what organizational factors are used by successful team teaching programs will be helpful in several ways. Such knowledge will be helpful to teachers and school administrators who are responsible for developing team programs. Guidelines for organizing a team teaching program will better be developed when the organizational factors of successful team teaching programs are known.

I hope you will take thirty minutes to complete the enclosed questionnaire and return it in the stamped envelope. Your cooperation will be greatly appreciated.

Sincerely,



Joseph Millard
Administrative Intern



Dr. Richard Manatt
Associate Professor of
Educational Administration

APPENDIX D. FOLLOW-UP LETTER

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY
Ames, Iowa 50010

COLLEGE OF EDUCATION
PROFESSIONAL STUDIES

February 18, 1971

Dear Principal:

Several weeks ago a questionnaire regarding team teaching was mailed to you. You may remember it as "another" questionnaire to compete for your time. We are very much aware of how you might feel about the time it takes to answer questionnaires which cross your desk. We can only ask your assistance in this research project.

Your cooperation is needed because your school has been identified in the educational literature as having an exemplary team teaching program. Conclusions for this study are being based on the assumption that recognized team programs can best furnish information about organizational factors contributing to the development of successful teaching teams. If you have discontinued your team teaching, please return the questionnaire stating that you no longer have a team program.

In the event that the first questionnaire was misplaced, we are enclosing another copy and a self-addressed stamped envelope. We hope you will not object to our asking your cooperation in completing the copy and returning it at your earliest convenience. Your efforts will result in a more accurate and meaningful report concerning successful team teaching programs.

We wish to thank you for your cooperation in making this study possible.

Sincerely yours,



Joseph Millard
Administrative Intern



Dr. Richard P. Manatt
Associate Professor of
Educational Administration

JM/sw