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Background and personality characteristics which are associated with successful team teaching were investigated for this study. Members of 31 secondary school teaching teams were rated by judges (who were principals, deans, and college consultants) individually and as teams on the bases of 10 background characteristics and eight personality characteristics, and completed a 16-factor personality questionnaire which included the personality characteristics on which they were rated. Also, a rating scale for each teacher, based on the 16 factors of the personality questionnaire, was completed by his school principal. Chi square analyses and tests of significance of the data showed that successful teaching team members held a higher degree, were teaching in their major field, and were more cooperative, stable, aggressive, enthusiastic, adventurous, shrewd, experimental, and self-controlled. In addition, it was found that school principals could not accurately assess personality traits necessary for effective team performance; therefore, critical performance scores for each personality factor examined in this study were identified to be used in selecting and assigning teachers to teams. (The first half of this report consists of a review of the literature concerning team teaching.) (SP)

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# Effect of Background and Personality of Teachers on Teaching Teams

by

David F. Cunningham

October, 1964

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# Preface

The primary purpose of the monograph series published by the Bureau of Education Research and Services is to disseminate the research findings of studies completed by faculty and graduate students. An effort is made by the staff to draw upon those studies which attempt to find solutions for current educational problems. Many educational decisions in the past have been based upon some vague feeling that one path was the more appropriate one without the assistance or benefit of scientific evaluation.

The availability of new statistical tools and concepts for dealing with problems of human inter-relationships will gradually convert education into a discipline supported by tremendous resources in the nature of research evidence. The emergence of educational innovation has made the application of proper evaluation techniques imperative. New programs or approaches to learning must be justified on the basis of more desirable outcomes to boards of trustees, parents, and professional colleagues. In many cases the success of the new program will depend upon the basis upon which it is administered or organized, as well as the manner or means of performance. Research results at any of these points may provide the essential know-how to insure success of the entire program.

Team teaching is one of the more recent innovations to find its way into professional literature and practice. This monograph is one of the few reports which are available in the professional literature that examined the organizational phases of building teaching teams in view of the effect of significant personality factors upon the success of team efforts. This monograph represents a significant addition to the professional literature in this area. Every administrator contemplating the organization of teaching teams as a staffing technique should make this study a part of his required reading. Research evidence of this kind points the way to more effective administrative decision.

October, 1964

Richard D. Strahan  
Associate Professor  
Department of Administration  
and Supervision  
University of Houston

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# THE PROBLEM AND ITS BACKGROUND

## Introduction

The ten year period, 1950-1960, is frequently referred to as a decade of experimentation in education. In light of the numerous educational concepts and practices appearing in the early sixties the reference may be considered appropriate.

During the era many phases of American education were examined. As a result, noticeable changes appeared in school organization, class size, audio-visual equipment and teaching aids, student grouping, and teaching. It is likely the most publicized and widely accepted practices resulted from those explorations in various ways of better utilizing the instructional staff.

In 1956 the National Association of Secondary School Principals began an extensive study of the school staff. The primary purpose of the project, as stated by Tompkins, was:

. . . to see what could be done further to improve the quality of education in the face of the teacher shortage.<sup>1</sup>

Approximately one hundred junior and senior high schools were participants by the end of the first year of operation. The Jefferson County, Colorado, School District became a member early in 1957. First year efforts were devoted to investigating the effect of class size on the achievement, attitude, and behavior of learners. In the following year the program included an evaluation of the academic progress of pupils assigned to teaching teams on a modified daily-class schedule.

The term "team teaching" first appeared in educational literature during the second year of the investigations. Its use had been proposed to the project in 1956 by Dean Francis Keppel of the Harvard Graduate School. He pointed out:

. . . that the innovation known as team teaching was not only a technique for the more efficient use of teaching talent, but that it could aid the problem of recruitment by offering powerful incentives to the highly capable student, and would

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<sup>1</sup>Ellsworth Tompkins, "The NASSP Project to Study Ways of Improving Staff Utilization," The Bulletin of The National Association of Secondary School Principals, 45:9-10, January, 1961.

establish teaching as a career with prospects of advancement and of financial reward.<sup>2</sup>

J. Lloyd Trump, the project director, defined team teaching with reference to its use in teaching pupils in large groups as:

Usually, the large group will be taught by a member of a teaching team, an arrangement whereby two or more teachers with assistants plan, instruct, and evaluate cooperatively two or more class groups in order to take advantage of their respective special competencies as teachers.<sup>3</sup>

In evaluating the use of teaching teams Anderson reported:

Team teaching is both old and new. In team teaching, many teachers will recognize certain processes of co-operative endeavor which are frequently found in good schools. Varieties of informal, co-operative teaching have probably existed for some time.<sup>4</sup>

He continued with the observation:

Nonetheless, in the present decade we are witnessing the first significant development of the team teaching idea and its translation into personnel policy, program arrangements, and architecture. This has in turn stimulated much fresh thinking about class size and organization, grouping practices, basic curriculum decisions, divisions of work load among the teaching staff, and the bases of pupil welfare.<sup>5</sup>

Five years of inquiry and reporting by schools participating in the project stimulated many other schools to adopt the more promising of the practices. The method of grouping teachers into instructional teams diffused so rapidly that a publication of the National Education

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<sup>2</sup>"More and Better Teachers," Decade of Experiment (New York: The Fund for the Advancement of Education Publication, 1961), p. 37.

<sup>3</sup>J. Lloyd Trump and Dorsey Baynham, Focus on Change (Chicago: Rand McNally and Company, 1961), pp. 30-31.

<sup>4</sup>Robert H. Anderson, "Team Teaching," National Education Association Journal, 50:52-54, March, 1961.

<sup>5</sup>Ibid.



Association carried a prediction that approximately one-third of the schools across the nation will be engaged in its use by 1965.<sup>6</sup>

## The Problem

Schools engaged in the team method of teaching are finding their most serious obstacle to be the selection and assignment of leaders and members for effective group performance. It is quite evident, from the reports, that additional personality information concerning each individual is prerequisite to placement in a teaching team.

The purpose of this study was to seek a possible solution to this problem by identifying those background and personality characteristics of teachers which are definitely associated with successful team teaching.

To fulfill this objective and make the findings of value in screening personnel, the study proceeded through the following phases: (1) evaluate the school principals' ability to select and assign leaders and members to teaching teams; (2) assess those background and personality characteristics appearing essential to successful individual and team performance; and (3) select scores on each personality factor examined which would predict individual and team success.

## Definition of Major Terms

Team Teaching. An arrangement whereby two or more teachers with assistants plan, instruct, and evaluate cooperatively two or more class groups in order to take advantage of their respective special competencies as teachers.<sup>7</sup>

Personality. The dynamic organization within the individual of those psycho-physical systems that determine his unique adjustment to his environment.<sup>8</sup>

Team Performance. (Criterion of the Study). This instrument consists of a number of dimensions of skill which should be possessed

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<sup>6</sup>The Principals Look At The Schools (Washington: National Education Association, 1962), pp. 17-20.

<sup>7</sup>Trump and Baynham, op. cit., pp. 30-31.

<sup>8</sup>Gordon W. Allport, Personality (New York: Henry Holt and Company, 1937), p. 48.

and activities that are performed in an individual's role as a team teacher. Team scores were determined by summing the total criterion scores of the teachers in each group.

Assessment. Ryans<sup>9</sup> cited several kinds of assessment recording devices which have been used in behavioral studies: graphic rating scales, behavior check lists, multiple-choice questionnaires, . . . The latter method was used to assess personality in this investigation. Scores on each factor were obtained from the teachers' responses on The Sixteen Personality Factor Questionnaire.

Significance. Two statistical tests were used to determine the level of significance on several aspects of the study. Chi-square values were calculated on the relationship between certain background characteristics and team teaching performance of the ninety-nine teachers involved in the investigation.

Chi-square values were also used to show the relationship between the school principals' estimates on each personality factor and the actual score made by the teacher on the questionnaire.

Fisher's t test was used to determine the significance of mean differences on each personality factor between high and low performance teams of teachers.

Probability scores outside the .05 level of confidence for the different statistical tests were treated as "not significant."

## Need for the Study

Considerable research during the past fifty years has been devoted to teacher characteristics as they affect pupil learning in individual classroom instructional performances. Agreement, according to Rivlin, persists throughout these studies that the teacher's personality is considered paramount and most significant to success.<sup>10</sup>

In team teaching, personality becomes an even greater problem. Achieving desirable learning outcomes are then dependent upon the background and personal factors of several individuals as compared to only one person in a typical classroom assignment. Stoltenberg described briefly the observations of his staff concerning this problem:

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<sup>9</sup>David G. Ryans, Characteristics of Teachers (Washington, D.C.: American Council on Education, 1962), p. 74.

<sup>10</sup>Harry N. Rivlin, "The Personality Problems of Teachers," Mental Hygiene, 23:12-24, January, 1939.

All members of the team must have mutual respect for one another, they must operate on a cooperative purposeful basis. There is need to agree on basic purposes, goals, and objectives. Unless the interaction on the team is positive, there is a potential danger that progress will not be made. It is workable if all members are congenial and have the personalities and abilities to create and execute ideas.<sup>11</sup>

There are, at present, no research-established criteria for the selection and assignment of teachers to instructional teams. Reports from the schools indicate membership is determined by each individual's preparation in the subject to be taught, a college degree, prior teaching performance, administrative judgment concerning the personality to work with others, and, in some instances, a personal desire to participate. In delegating responsibility as team leader, additional attention was usually given to the person's proven leadership abilities.

A review of current teacher deployment practices caused Hall and Vincent to conclude:

. . . In spite of all that is known about the differences among teachers most assignments take place as if all teachers are relatively alike.

Very little research on the matter has been done. The TV programs, throughout the country, the teacher-aide programs, recent experiments in new kinds of grouping, and the study of ways teachers spend their time all have a bearing on this problem of assigning teachers on the basis of their strengths and individualities. They do not, however, go far enough in this direction to be conclusive. . . . If it is true that no individual possesses all the characteristics and behaviors necessary for any one learning situation, but that several teachers collectively may possess them, then the assignment pattern may involve several teachers for some learning situations and groups of children, instead of one teacher for one group of children.<sup>12</sup>

Performing in a teaching team is a different role for teachers, one in which they have not been trained and for which many do not possess the personality to function successfully. Trow has proposed the idea that:

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<sup>11</sup>James C. Stoltenberg, "Team Teaching In The Junior High School," Educational Leadership, 18:153-155, December, 1960.

<sup>12</sup>Roy M. Hall and Antonio M. Vincent, "Assignment of Teachers," Encyclopedia of Educational Research (third edition, New York: The Macmillan Company, 1960), p. 1377.

. . . quality of teaching is a function not only of the degree of development of skill, but also of the intrusion of personality and role factors into the teacher's classroom behavior. Personality factors modify the individual's ability to recognize and assume the appropriate role in a particular situation, and, as a consequence, the development of the needed skill may be accelerated or retarded.<sup>13</sup>

He continued with the following suggestion:

Clearly, it becomes necessary, first, to delineate the roles for the performance of which appropriate skills must be developed. Then, we can consider the personality factors that may interfere with the recognition and acceptance of these roles and the development of skill in their performance.<sup>14</sup>

In addition to the two suggestions just cited, another from the 1955 American Association of School Administrator's Yearbook is of value to those persons having the responsibility for selecting and assigning teachers to instructional teams.

Individuals do not automatically change their personality traits upon becoming members of a group. They bring with them all the opinions they have formed over the years, their likes and their dislikes, their belief or disbelief in John Dewey, their biases, their family social background, and all their 'good and mean streaks' of character. The problem is not to get them to conform to a set pattern but to understand how they can use their various experiences, abilities and background in a constructive manner.<sup>15</sup>

Assigning leaders within the teams also presents an administrative problem. In a report on the manipulation of teachers, Travers contended:

It is just no use asking some teachers to teach by methods that require them to act as authority figures. These teachers simply cannot assume that kind of role because it is inconsistent with their personalities and life goals, and because they

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<sup>13</sup>William C. Trow, "Role Functions of the Teacher in the Instructional Group," The Dynamics of Instructional Groups (Chicago: National Society for the Study of Education, Part II, The University of Chicago Press, 1960), p. 36.

<sup>14</sup>Ibid., pp. 36-37.

<sup>15</sup>Staff Relations In School Administration (Washington, D.C.: The American Association of School Administrator's Yearbook, 1955), p. 91.

do not have the repertoire of responses needed for playing the part.<sup>16</sup>

This study was based upon the direct observation that: (1) there are, as yet, no research-established guidelines for selecting and assigning leaders and members to instructional teams; (2) successful team performance is dependent upon certain background and personality characteristics in each and all individuals within the group; and (3) the team teaching method is becoming more wide-spread in schools throughout the United States.

## The Setting

The Jefferson County, Colorado, public schools were selected for the study. Reasons were: (1) the schools' extensive participation in team teaching, and (2) the three year's experience of the author in the district during this period.

Jefferson County is geographically located as a western suburb of Denver, Colorado. It is fifty-four miles long, eighteen and one-half miles wide, and contains 791 square miles. The 1960 census listed the population at approximately 125,000 people. This figure has changed considerably, for in 1960 there were about 33,000 students in the schools as compared to more than 37,000 two years later.

The district operated forty-two elementary, ten junior high, and eight high schools at the time of this study. All eight high schools and one junior high were the research setting. Table I shows the characteristics of these schools.

Teams in these schools varied from the coordinate teaching design to a more complicated hierarchy of several teachers with one designated as team leader, a paraprofessional or teacher assistant, and a clerk. The principals, deans, three or four parents, two or three students, and a college consultant were frequently engaged as a steering committee for each group. Subjects taught included English, mathematics, science, social studies, foreign languages, commercial subjects, and physical education. No supplementary monetary compensation was allowed for teachers in team teaching. Team leaders, however, received a reduced class load. In nearly every instance team members had a common planning period during the regular school day. Once each month all team members attended an in-service meeting with the local school supervisory staff and the Denver University Consultants.

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<sup>16</sup>Robert M. W. Travers, An Introduction to Educational Research (New York: The Macmillan Company, 1958), pp. 346-347.

TABLE I  
 CHARACTERISTICS OF SELECTED SCHOOLS IN  
 JEFFERSON COUNTY, COLORADO,  
 FEBRUARY, 1962

Schools	Type	Enrollment	Number Teaching Teams	Number Teachers in Teams
Almeda	H.S.	950	2	9
Arvada	H.S.	1250	1	2
Bear Creek	H.S.	270	3	8
Marie Creighton	J.H.	786	10	27
Evergreen	H.S.	275	2	5
Golden	H.S.	663	4	19
Jefferson	H.S.	680	4	9
Lake Wood	H.S.	1049	3	10
Wheat Ridge	H.S.	1124	3	12
Totals		7047	32	101

Despite a salary schedule only slightly above average, the schools were staffed with highly competent personnel. Extensive recruiting procedure, with the lure of a favorable Colorado climate and a dynamic educational program, brought teachers from almost every state and several foreign countries.

By selecting for study the teachers and teams within a single school system, it was possible to hold constant such variables as:

- (1) Administrative philosophy
- (2) Assessed valuation
- (3) Expenditures per pupil
- (4) Teachers' salaries and compensations
- (5) Community factors: size, resources, etc.
- (6) Procedures for selecting and assigning teachers
- (7) Supervisory influences

## Limitations of the Study

Several factors limited the scope and findings reported in this study. They were:

- (1) The study was confined to only one school system.
- (2) It included only secondary teachers and teaching.
- (3) The personality scores were derived from the administration of one questionnaire.
- (4) Only those background factors, as selected by the judges, appearing to affect individual and group performance were selected for the study.
- (5) The effects of team teaching on student attitudes and achievement were not examined.
- (6) No effort was made to determine the merit of grouping teachers for instructional purposes.

## II

# TEAM TEACHING

### Historical Development

The present day practice of grouping teachers into instructional teams emerged from staff utilization studies sponsored by the National Association of Secondary School Principals. Sequential steps in the development of this project are presented, in part, in the following outline:

- (1) The Executive Committee of the National Association of Secondary School Principals in January, 1955, authorized its Curriculum Planning and Development Committee to act for the Association in seeking ways and means of meeting the teacher shortage at the high-school level.
- (2) The Curriculum Planning and Development Committee met on several occasions with representatives of the Fund for the Advancement of Education to explore the problem and to determine whether or not the Fund might be interested in providing financial support for studies concerned with the problem. From the outset, representatives of the Fund exhibited much interest in the problem.
- (3) In May 1955, funds were appropriated for the Curriculum Planning and Development Committee to survey high schools to find those interested in conducting projects to relieve the teacher shortage.
- (4) Officials from a number of these schools, representatives of the Fund, and representatives of the Curriculum Planning and Development Committee met in December 1955, to consider further the nature of the project in which these schools had indicated an interest.
- (5) The appointment of the Commission on the Experimental Study of the Utilization of the Staff in the Secondary School was approved on January 21, 1956, by the Executive Committee of the National Association of Secondary School Principals to implement "A Proposal Designed To Solve The



Problem of Teacher Shortage in The High Schools of The United States."<sup>1</sup>

Trump<sup>2</sup> estimated approximately one hundred junior and senior high schools were originally involved in the experimental project.

Experimental studies reported by Trump<sup>3</sup> at the end of the first year were in the following areas: television; grouping of students for more effective instruction and improved staff utilization; teaching assistants; assignment of staff and scheduling; curricular revision, evaluation, and in-service growth; guidance in large groups; teacher consultants; and multiple class teaching. A year later, January, 1959, he listed the findings which appeared justified from the school reports.

Students can learn when taught by means of television, electronic tape, overhead projector, and films.

Size of class in itself has little relationship to the achievement of students.

Students can learn materials as well in large groups of 70, 100, or even 1100, as in traditional classes of 25-30.

Teachers believe a number of advantages accrue to themselves and students when teachers work together as teams rather than separately as individuals.

Small schools as well as large can benefit from the aid of university consultants.

Promising students who are not going to college for financial reasons can become potential teachers when scholarships are provided.

Carefully selected and trained non-certified persons can effectively perform a number of sub-professional teaching

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<sup>1</sup>Charles W. Sanford, "Why the Commission on the Experimental Study of the Utilization of the Staff in the Secondary School Was Created," The Bulletin of the National Association of Secondary School Principals, 42:16-18, January, 1958.

<sup>2</sup>J. Lloyd Trump, "The Purpose of the January 1959 Bulletin," The Bulletin of the National Association of Secondary School Principals, 43:3-4, January, 1959.

<sup>3</sup>J. Lloyd Trump, "Others Are Also Extending Horizons In Staff Utilization," The Bulletin of the National Association of Secondary School Principals, 42:197-208, January, 1958.

services which now require time and energy of certified personnel.

Students can profitably make use of laboratory facilities outside of regular class time, including Saturdays, even though the laboratories are supervised by trained, though not certified, personnel.

A schedule of classes that provides flexibility in meeting days and length of periods of relation to purposes can be constructed.

New buildings can be planned and existing ones remodeled to facilitate flexibility in class size in relation to purposes and content of instruction.

Teachers engaged in staff utilization studies reflect gains in morale. Individual differences among teachers in interests and competencies can be recognized in assignments to specific teaching responsibilities.

Personnel resources exist in communities to supplement the services of the professional staff.

Stimulating widespread action research is possible in a wide variety of schools.

Curricular organization is related to staff utilization.

Teachers can readily and effectively learn the use of electronic and mechanical aids to instruction with a minimum of training by university consultants.

The provision of sub-professional assistants for appropriate phases of instruction may actually simplify the scheduling of students, make possible better services to students, and be financially feasible.

Small schools as well as large can profit from staff utilization studies.<sup>4</sup>

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<sup>4</sup>J. Lloyd Trunk, "Summary and Some Findings," The Bulletin of the National Association of Secondary School Principals, 43:284-290, January, 1959.

The concept of grouping teachers into instructional teams had been renewed during those first two years in the staff utilization studies. Singer estimated, that by 1960, systematic team teaching was found in more than one thousand secondary schools and associated teaming of teachers existed in some four thousand schools nationwide.<sup>5</sup>

## Administration of Team Teaching

Rasmussen presented a theoretical background for team teaching.

Team teaching is based upon the philosophy that there are a number of different kinds of jobs a teacher traditionally must perform, many of which do not require professional certification; that each teacher is uniquely equipped to perform certain functions better than other teachers; and that certain kinds of learning can be carried out in large groups while other kinds require small groups and greater individual effort.<sup>6</sup>

### Type and Structure of Teams

Drummond had identified five basic types of teaching teams with, of course, many variations of each of them. These are: (1) a hierarchical structure with a leader of superior educational preparation and leadership qualities, senior teachers, part-time assistants, and clerical aids; (2) a coordinate structure of two or more teachers who plan together with equal authority; (3) a pattern which involves several teachers and a two-or-three-period block of related content (for instance American History and American Literature); (4) a provision of additional help for the regular teacher in the form of instructional secretaries, grader assistants, and audio-visual experts; and (5) a trading of teachers to make the most of particular strengths. He observed the latter informal practice as perhaps the oldest form of team teaching, since it had been used for many years in the elementary schools.<sup>7</sup>

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<sup>5</sup>Ira J. Singer, "Survey of Staff Utilization Practices in Six States," The Bulletin of the National Association of Secondary School Principals, 46:13, January, 1962.

<sup>6</sup>Gerald R. Rasmussen, "Current Experimental Practices in High School Programming," Michigan Journal of Secondary Education, 1:131-143, Spring, 1960.

<sup>7</sup>Harold D. Drummond, "Team Teaching: An Assessment," Educational Leadership, 19:160-165, December, 1961.

The use of television as a teaching medium adds to Drummond's five examples. One setting utilizes a subject matter specialist who provides instruction to large numbers of students and teachers as a resource person. This arrangement is frequently referred to as a form of "enrichment" and is more often found on open-circuit television going to several schools simultaneously. A second type is that of closed-circuit television. The teacher is usually a member of a team and a regular classroom teacher. All members of the team may teach on this medium in their areas of specialization.

Teaching teams may vary in several aspects. In analyzing the more common variations, a report of the Fund for the Advancement of Education made reference to team size.

There is no standard pattern for teaching teams. They may be large, consisting of six members, or small, consisting of two. They may or may not include nonteaching aides; they may operate only in certain grades, throughout the school system, or in various combinations. They can be adapted to schools of almost any size.<sup>8</sup>

The report also related certain features to be found in all teams.

They aim at educational excellence mainly through more efficient use of specialized talents and through added incentives to the teaching profession. Team teaching permits the school system to make the most of the differences among teachers, capitalizing upon individual experience, subject specialization, and variations in personality and outlook. This is both satisfying to the teachers and beneficial to the students. And by relaxing the rigid classroom pattern to permit large grouping for certain lectures, tests, and the like, it makes teacher time available for small-group classes and extensive individual work.<sup>9</sup>

As indicated earlier, a team may be composed of two or as many as six people. Brownell and Taylor have defined these elements:

A Team Leader is a mature, experienced, licensed teacher of unusual talent and extensive training who has been elected or appointed to serve as the leader of a teaching team and whose major responsibilities are teaching and coordinating the team's efforts. He is paid a stipend above his normal pay for this

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<sup>8</sup>Decade of Experiment (New York: The Fund for the Advancement of Education, 1951-61, Ford Foundation, April, 1961), p. 52.

<sup>9</sup>Ibid., p. 53.

latter responsibility. Moreover, he receives time to plan and coordinate team activities.

A Team Teacher is a fully licensed teacher who serves as a member of a 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 advance study, unusual knowledge, and great skill in teaching.

A Teacher Aide is a non-certified 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.<sup>10</sup>

Frequently the term paraprofessional or teacher assistant appeared in the literature. Johnson and Lobb defined this team member as an uncertified person with or without a baccalaureate degree, but with some skill in typewriting and a background of courses in the school subject.<sup>11</sup> A knowledge of the course being taught allows this aide to grade tests, reports, and other pupil activities.

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<sup>10</sup>John A. Brownell and Harris A. Taylor, "Theoretical Perspectives for Teaching Teams," Phi Delta Kappan, 43:150-157, January, 1962.

<sup>11</sup>Robert H. Johnson and M. Delbert Lobb, "Jefferson County, Colorado, Completes Three-Year Study of Staffing, Changing Class Size, Programming, and Scheduling," The Bulletin of National Association of Secondary School Principals, 45:57-77, January, 1961.

## Student Grouping

In his book Images of the Future, Trump proposed three types of student grouping for team teaching: large-group instruction, small-group discussion, and individual study.<sup>12</sup> Although he adequately described the organization and procedures in this type of grouping, a more concise report was selected for this illustration. Rasmussen stated that:

Large group instruction would occupy approximately forty per cent of the student's time and would concern itself with introduction of new concepts, motivation, explanation, planning, group study, enrichment, generalization, and evaluation. This type of instruction would be carried on in large areas such as the auditoriums, small theaters, cafeterias, and study halls by a specially qualified teacher. In some cases this instruction would be given through the medium of television with the students assigned to a number of smaller rooms but receiving the same instruction at the same time.

Small-group instruction would occupy approximately twenty per cent of the student's time and would concern itself with group examination of terms and concepts, solution of problems, studying areas of agreement and disagreement, and improving interpersonal relations. This type of instruction would be carried out in the traditional classrooms and in conference rooms. Its value is that it allows the membership of small groups to vary according to the course content and immediate subject matter so that a greater degree of homogeneity may be reached.

Individual study would occupy approximately forty per cent of the student's time and would include reading, listening to records and tapes, viewing, questing, analyzing, thinking, writing, experimenting, creating, memorizing, and investigating. This type of learning would take place in such areas as the laboratory, library, workshop, project center, and museum. The main difficulty here is an attitude among many students and some teachers that learning must be a spoon-feeding situation. Before this extent of individual study can be effective students must assume the necessary maturity and drive to study on their own without constant supervision and prodding. It is also necessary that there be better instruction in how to study and better facilities for individual study, and that a better

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<sup>12</sup>J. Lloyd Trump, Images of the Future (Urbana, Illinois: Commission on the Experimental Study of the Utilization of the Staff in the Secondary School, 1959), pp. 9-10.

attitude among teachers be developed toward individual study by the students.<sup>13</sup>

Trump and Baynham urged that the three phases of instruction, large group, small group, and individual be related.

The school of the future will recognize the relationships among various aspects of learning; what happens to the students when they take part in small classes of 15 or less for purposes of discussion; when they work in relatively independent manner in laboratories, libraries, and cubicles; or when they listen to or view a demonstration or explanation in the setting of large-group instruction.<sup>14</sup>

### Problems in Teaming

Several factors condition the successful performance of teaching teams, particularly at the secondary school level. The more common difficulties in formulating instructional groups of teachers have been identified by Brownell and Taylor:

1. Finding teachers who can function harmoniously as a team.
2. Finding strong team leaders.
3. Scheduling team classes in secondary schools and organizing flexible groupings in the elementary schools.
4. Irritating effects of teams on existing departmental and grade level organizations.
5. Creating new and different administrative roles and problems.
6. Forcing independent and creative teachers into groups which inhibit their freedom.
7. Lowering the morale of non-team teachers.
8. Locating, training, and supervising teacher aides.<sup>15</sup>

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<sup>13</sup>Rasmussen, op. cit., p. 136.

<sup>14</sup>J. Lloyd Trump and Dorsey Baynham, Guide to Better Schools (Chicago: Rand McNally and Company, 1961), p. 32.

<sup>15</sup>Brownell and Taylor, op. cit., p. 152.

They failed to point out the problem of adequate facilities for accommodating students in large-group and individualized instruction. Trump tells how teams may be utilized effectively in a typical high school building with a more flexible class schedule. He began by proposing that the students be given:

More opportunities to work independently for as long as three hours at a time in laboratories, libraries, shops, and similar work areas.

Increased freedom to vary the length of time large and small groups meet according to their special requirements.

Greater possibilities to alter individual and group programs at any time during the year.<sup>16</sup>

Trump then pointed out ways this could be accomplished by suggesting things the schools should do:

Use electronic devices in consultation with equipment specialists for scheduling students.

Assemble and record current data about student needs and interests.

Develop systematic procedures for teachers and counselors to initiate schedule changes.

Reduce the time that students are scheduled in groups to an average of 18 hours per week.

Lengthen the school day, week, and year.

Undertake steps to make conventional schedules more flexible:

Divide the school day into 15-, 20-, 25-, or 30-minute modules and schedule classes for different numbers of modules.

Schedule classes for longer sessions, fewer times per week.

Set aside one or two times per day for large and small group meetings and independent study.

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<sup>16</sup>J. Lloyd Trump, New Directions to Quality Education (Washington, D. C.: Publication of the National Association of Secondary School Principals, 1961), p. 7.



Devote one day per week to large- and small-group meetings and independent study.

Reduce the amount of time for conventional class meetings to provide more independent study for students.<sup>17</sup>

#### A Proposed Team Model

For a more complete understanding of the organization and procedures found in team teaching, a theoretical model by Brownell and Taylor was selected:

The faculty team consists of teachers from an academic discipline who assume responsibility for a small or great portion of the academic education of their students. Each team meets regularly to organize instruction, to develop common policies and purposes, to share information concerning students, and to plan field trips and the use of community resource persons. The student teams comprise ninety to 200 students who have chosen a similar program of courses. The block scheduling of team students and teachers permits variations in the length and sequence of classes. When a flexible schedule, or a program to eradicate a study deficiency, or a carefully designed inter-relationship of materials is desired for team students, it is planned and carried out by the faculty team. Team students who are together for two to five periods a day, sharing a common program with the same teachers, develop a mutual understanding. Using this knowledge, the team teachers plan their courses, and work on a problem which confronts a team student, concentrating their combined efforts on a healthy solution. If they wish, they can bring a student in for group counseling, thereby offering evidence to the student that all of his teachers have an equal interest in him and that they are ready to help him. If necessary, all the team teachers can meet with a parent to talk about his youngster's performance. Under the team leader's direction, the team constitutes a clearly identifiable instructional unit and student group within the total school.<sup>18</sup>

As teachers are trained for group participation, as facilities and equipment are adapted to large group and individual instruction, and as school schedules become more flexible, increased utilization of team teaching may be expected. The literature on team teaching has been predominantly in favor of this method of instruction if certain precautions are observed.

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<sup>17</sup>Ibid.

<sup>18</sup>Brownell and Taylor, op. cit., p. 156.

### Administrative Factors

To avoid problems and pitfalls, Stone has recommended that school administrators remember:

1. The physical set up of the school should lend itself to large groups necessitated by the teams, such as connected rooms.
2. Do not schedule more teams than can be adequately housed in existing plant facilities. Conflicts in use of large group meeting areas are extremely frustrating.
3. The teachers picked for team leaders also should have the qualities needed for their duties.
4. Scheduling should provide for common prep periods for team teachers, aides, and other teachers in the department.
5. Establish definite planning sessions daily and weekly within each team. Careful, adequate planning is essential, not only for instruction itself, but for details such as assignment of lockers, texts, etc., even with two aides.
6. Use discretion in establishing teams. A meeting of proposed team members prior to a commitment of working together is necessary for the teachers to discuss their philosophies of teaching.
7. With so much adult help, care must be taken to give the students a share of the responsibility--in class management, discipline, organization, etc.
8. In a double size class it is difficult to get to know each student personally. A conscientious effort on the part of the teacher is essential if she is going to accomplish this goal.
9. Avoid excessive use of large-group presentations and activities.
10. All team members have valuable contributions to make to the lesson. The leader is motivated to develop quality lessons to gain the respect of the aides.<sup>19</sup>

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<sup>19</sup>William J. Stone, "What is Happening in the Use of Teacher Teams and Teacher Assistants?" (a paper presented to the Forty-Fifth Annual Convention of the National Association of Secondary-School Principals, Detroit, Michigan, February 13, 1961), pp. 1-12.

### Advantages in the Use of Teaching Teams

Almost every article on team teaching in the educational literature lists or describes the benefits to be derived from the use of this instructional approach. An analysis of twenty-five studies by Marchus and Montgomery listed the more obvious advantages.

1. Avoiding the repetitions of presenting the same material several times in one day.
2. Greater use of community resources with large groups.
3. Reduction of influence of uninterested students.
4. Better discipline resulting from reduction of influence of uninterested students.
5. Teachers study subjects in their area of specialization during summer months.
6. It is advantageous for student teachers.
7. Provides for more effective use of teacher talents.
8. Relieves teachers of clerical duties and other non-teaching functions.
9. Recognizes outstanding teachers and gives them status.
10. Provides students with more adult contacts.
11. Provides greater flexibility in organization and grouping.
12. Instruction is adapted to individual differences.
13. Provides more time for superior preparation by teachers.
14. Indicates greater student interest resulting from varied presentations.
15. Saves funds by reducing the need for substitute teachers.
16. Provides the possibility for mutual growth of team members.
17. Use of mechanical devices improves instruction.<sup>20</sup>

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<sup>20</sup>Floyd Marchus and Charles D. Montgomery, Team Teaching: A Research Guide for Administrators (Martinez, California: Contra Costa County School Publication, December, 1960), p. 37.

Findings of the experimental programs were too numerous to report in this study. Because of the author's experience and interest in the Jefferson County, Colorado, School District, it was desirable to enter the results of their three years of investigation into class size, schedule modification, and team teaching. Their conclusions were:

Extensively modified schedules, adapted to the teaching function, produce as good or better results in pupil achievement than the usual procedure.

Teams made up of teachers, paraprofessionals, pupils and parents or other adults produce as good or better results in pupil achievement than teachers working alone with regular classes.

A team composed of teachers qualified in different subjects produces as good results in pupil achievement in those subjects as teachers working independently with regular classes.

Guidance personnel, working as a team in concert with a subject area group, are more successful in their program than those functioning independently within a school.

Non-graded English classes, adjusted to the educational development of the students, produce better results in pupil achievement than regular graded classes.

Pupil placement, the consideration of individual differences, is accomplished more satisfactorily in team teaching situations than in those with regular schedules.

Material and personnel resources are used more frequently and effectively by teachers in the experimental program than by those in regular situations.

Increased opportunity for independent study is an effective procedure in teaching senior high school students.

Attitudes and morale of teachers and pupils in the experimental situations are more favorable than those of persons in regular classes.

The adaptability of teachers improves as a direct result of participating in the experimental program.<sup>21</sup>

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<sup>21</sup>M. Delbert Lobb, An Experimental Study of The Utilization of the Staff in Education (Jefferson County, Colorado, School District R-1 Publication, June, 1960), p. 25.

Of special significance in the various school reports were the effects team teaching has on the participating teachers. Stoltenberg found his teachers felt they were better teachers because of the opportunity to specialize. It also ameliorated those problems usually associated with student grouping, and teacher planning and preparation.<sup>22</sup>

### Summary

A review of the literature on team teaching produced three definite conclusions: (1) team teaching is proving a valuable method for better staff utilization; (2) with the exception of selecting and assigning individuals for effective team participation, the obstacles frequently cited do not appear insurmountable; and (3) the wide-spread diffusion of team teaching should be expected to increase even more rapidly in the next few years.

Critiques from notable educators have made important contributions to the team method of teaching. A personal appraisal by Cunningham reflects the potential of this technique in education.

It should be recognized that all teachers cannot be effective team teachers. But for those who are philosophically and psychologically tuned to working closely with competent colleagues, team teaching can be a stimulating and rewarding, even though demanding, experience. When team teachers have adequate time for joint planning, when school administrators make available adequate space for housing large classes, when school systems place a premium upon superior performance, teachers grouped into teams can make an important contribution.<sup>23</sup>

Elsewhere in the same article Cunningham made these comments:

In nearly every report of team teaching the team members and the administrators associated with these projects are enthusiastic about the results. From my observations of team teaching in operation, I would concur with these appraisals. The professional stimulation that a capable teacher receives from others cannot be discounted. Teaching seems to take on new meaning, and considerable professional growth can occur.<sup>24</sup>

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<sup>22</sup>James C. Stoltenberg, "Team Teaching in Junior High School," *Educational Leadership*, 18:153-155, December, 1960.

<sup>23</sup>Luvern L. Cunningham, "Team Teaching: Where Do We Stand?" *Administrator's Notebook*, 8:1-4, April, 1960.

<sup>24</sup>Ibid., p. 4.

The historical development and current status of team teaching was depicted in this chapter. Advantages are predominantly in favor of the team teaching technique. Many of the problems mentioned were due to schools adopting team teaching without adequate planning and preparation. Anderson issued a word of precaution to those schools planning the implementation of the team method of instruction.

It is especially important for administrators and others to realize that even the smallest steps toward team teaching must be taken with the utmost care. Few, if any, school districts are presently in a position to launch team teaching with less than one or two years of advance preparation.<sup>25</sup>

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<sup>25</sup>Robert H. Anderson, "Team Teaching In Action," The Nation's Schools, 65:62, May, 1960.

### III

## RESEARCH METHODOLOGY

The operational design used in this investigation was based upon the specific purposes of the study as stated in Chapter I, and procedures employed in similar research as reported in related literature.

Major techniques were: (a) the selection and administration of an appropriate instrument for assessing personality; and (b) the development and application of a criterion which would allow varying performance levels of team members to be measured and recorded.

Specific and sequential steps involved in securing data were: (1) selection of teaching teams; (2) assignment and instruction of the judges; (3) compilation by the judges of a list of background and personality characteristics appearing to affect performance in team teaching; (4) selection and administration of a personality questionnaire; (5) procurement of estimates from principals as to personality dimensions of each team member; and (6) procurement of individual and team scores on the performance criterion.

### Participants in the Study

All of the 32 teaching teams, comprising 101 team teachers, in the secondary schools of Jefferson County, Colorado were selected for the study (one team was subsequently eliminated from the study). The teams ranged in size from two to six teachers and in every group one person was designated the leader or master-teacher. Team leaders received no extra monetary compensation for their position but were granted a reduced class load. Each team had a daily common planning period and participated in bi-monthly in-service programs involving participants throughout the school system. Criteria for selection and assignment to a teaching team had been primarily: a college degree, some preparation in the subject matter to be taught, prior teaching performance, and in some instances a desire to participate. In delegating responsibility as team leaders, additional attention had been given to prior teaching experience plus some judgment concerning the individual's proven leadership abilities.

## Selection of Judges

The principals', deans', and college consultants' close association with team functions in this situation made possible the selection of competent judges who were appointed to evaluate personalities and performances of both the individual teachers and the teams.

Cattell had suggested these methodical points for a good rating:

1. Implicit time sampling. The subject should live with the rater (as in a fraternity) or be under observation for so much of the day that the former is seen in many stimulus conditions, as required in actual time sampling.
2. Time length. The period of observation should extend to at least two or three months (preferably a year), so that sufficiency of extreme situations are encountered to get a deeper emotional reaction. . . .
3. Behavioral definition. The 'trait' or segment of behavior in question should be clearly defined, discussed, and connotatively delimited by a list of actual behavior. Such behaviors, following Flanagan, we will call 'critical incidents.' The judges, in short, should have training in recognizing, distinguishing, and uniformly recording the trait element they are to rate. . . .
4. Comparable sigmas. Statistical devices should be used which prevent attenuative (and other) error arising from differences among judges as to what is the real sigma for the population in the trait concerned. . . .
5. Avoiding of role relations. Special role relations between rater and rated should be avoided. Probably the best rating is peer rating. On the other hand, rating is done when the judges have high intelligence. . . .
6. Democratic judgment. Every subject should be rated by 10-20 judges, whose values are averaged. . . .
7. Splitting stereotypes and halos. It is desirable to reduce possible 'stereotype' effects: (a) by the specific precisions of trait element definition; (b) by training the judges in objectivity; (c) by having, in some traits, the 'desirable' pole rated high and, in others, the converse; and (d) by having traits discussed and rated one at a time, thus centering attention on the behavior rather than the individual.



A day or two had best elapse between such single trait ratings. . . .<sup>1</sup>

With the exception of number six, where only from three to five persons judged each individual and team, all the other criteria and procedures were observed in the selection and instruction of judges used in the study. The raters had known and worked with, almost daily, every individual and team for at least six months.

After a performance criterion had been developed and the personality questionnaire selected, a conference was held with the judges to discuss the instruments and provide instruction on the scoring procedures to be followed.

### **Tasks, Procedure and Relationships of Team Teachers**

In order that an adequate performance criterion be established, it was necessary to identify the tasks, procedures, and relationships of teachers in a team role.

These things teachers must know and do in a team teaching role:

1. Have mastery of subject matter content and related learning materials.
2. Plan, teach, and evaluate cooperatively with team leader and other members.
3. Understand and accept all phases of team teaching.
4. Be willing to put forth extra effort.
5. Plan effective learning activities for students.
6. Accept responsibility within the group.
7. Possess a knowledge of the criteria and methods used to evaluate student abilities, interests, and progress.
8. Work with various sized ability groups.
9. Analyze own abilities and accept role befitting personal strengths.

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<sup>1</sup>Raymond B. Cattell, Personality and Motivation: Structure and Measurement (New York: The World Book Company, 1957), pp. 63-69.

10. Be adaptable to new ideas, knowledges, and procedures.
11. Know proper use of audio-visual equipment in the instructional program.
12. Prepare students to accept responsibility for their own physical, mental, social, and emotional development.
13. Discuss with parents their child's progress in relation to his abilities.
14. Assume dual role of team and faculty member.
15. Make proper use of community resources through use of consultants, field trips, and student projects.
16. Utilize skill of aides and make provisions for their contributions to the group.

Judges used the above factors as their basis for determining the background and personality characteristics which appeared essential to successful performance in team teaching.

### **Background and Personality Characteristics**

The judges were asked to list those background and personality characteristics appearing to affect performance in team teaching. They proposed eight background characteristics: (1) age, (2) sex, (3) teaching experience, (4) years since college, (5) degree held, (6) teaching presently in major or minor field of preparation, (7) years performed as a team leader, and (8) years performed as a team member. Two other factors were suggested: (1) size of the teaching team, and (2) subject taught. (See Appendix C.)

The judges were asked to list in rank-order those personality traits appearing essential in successful team teaching. They named eight trait variables in the following order of importance: (1) cooperative, (2) intelligent, (3) enthusiastic, (4) friendly, (5) experimental, (6) conscientious, (7) creative, and (8) mature. These personality characteristics had not received priority in the original selection and assignment of individuals to the teaching teams. In fact, little consideration had been given to the background and personal characteristics.

## Selection and Administration of the Personality Questionnaire

In selecting a personality test, three factors entered into the decision: (1) The test should include at least those traits listed by the judges; (2) It should possess the criteria required of a good test; and (3) The scores obtained should allow comparisons to be made with the criterion in predicting the aspects of performance that are especially dependent upon a single or several traits of personality.

Examination of the more than one hundred and fifty personality tests described in Buros' Mental Measurements Yearbook<sup>2</sup> led to the selection of The Sixteen Personality Factor Questionnaire, form B.<sup>3</sup> This test not only measures all the traits listed by the judges and meets the criteria of a good instrument, but also according to the authors:

The 16 P.F. is a psychologist's answer, in the questionnaire realm, to the demand for a test that will give the fullest information in the shortest time about most personality traits. It is not merely concerned with some narrow concept of neuroticism or 'adjustment,' or some special kind of ability, but sets out to cover planfully and precisely all the main dimensions along which people can differ, according to basic factor analytic research.<sup>4</sup>

Elsewhere, they say:

It is at present unique in: (a) having every item possessed of a demonstrated saturation with respect to each of the factors which it sets out to measure, and (b) having proof that each of the questionnaire factors corresponds to a primary personality factor found elsewhere, i.e., beyond the questionnaire realm, notably in ratings in real life situations in the Objective Analytic Factor Battery, in social response patterns, and in abnormal, pathological behavior.<sup>5</sup>

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<sup>2</sup>O. K. Buros, The Fifth Mental Measurements Yearbook (Highland Park, New Jersey: The Gryphon Press, 1959), pp. 86-124.

<sup>3</sup>R. B. Cattell, D. R. Saunders, and G. Stice, Sixteen Personality Factor Questionnaire, form B. (Champaign, Illinois: Institute for Personality and Ability Testing, 1961).

<sup>4</sup>R. B. Cattell, D. R. Saunders, and G. F. Stice, Handbook for The Sixteen Personality Factor Questionnaire (Champaign, Illinois: Institute for Personality and Ability Testing, 1957), p. 1.

<sup>5</sup>Ibid., p. 2.

The nature of the sixteen personality factors measured by this predictive instrument and the interpretation of scores on each personality factor are summarized as follows:<sup>6</sup>

A. Cooperative vs. Obstructive. In questionnaire responses the higher scoring individuals express marked preference for occupations dealing with people, enjoy social recognition and are generally willing to go along with expediency; while the lower scoring persons like words or things (particularly material things), working alone, intellectual companionship, and evidence of compromise. There is evidence that collections of higher scoring persons more readily form active groups, there is experimental proof that they are more generous in personality relationships, less afraid of criticism, better able to remember names of people, but less dependable in precision work and meeting obligations exactly.

B. General Intelligence vs. Mentally Dull. These associations are not very highly loaded and indicate only a moderate tendency for the more intelligent person to have somewhat more morale, persistence, and strength of interest. Indeed, the principal object in measuring it in the 16 P.F. is not to add personality information but to complete the measurement of factors important in most predictions by adding a good general ability measure.

C. Emotionally Stable vs. Unstable. In experimental group dynamics it is shown that groups of high average maintain better group morale. Occupationally, individuals having to adjust to difficulties thrown upon them from outside, e.g., teachers, engineers, salesmen, and firemen, run well above average on this factor.

E. Aggressive vs. Submissive. Groups averaging high on this factor show more effective role interaction and democratic procedure. They feel free to participate, they raise group problems, and they criticize group defects.

F. Enthusiastic vs. Sober. Elected leaders are far higher than followers on enthusiasm but the difference is scarcely significant for effective leaders. In group interaction measures, enthusiastic persons receive many votes, are widely accepted, and receive significantly more ratings as effective speakers.

G. Conscientious vs. Undependable. The applied social validation data show that high scores significantly distinguish leaders of all classes and are associated in all members with a higher percentage of group-task oriented participation of all kinds.

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<sup>6</sup>The letters A, B, C, etc., used to identify the factors are those used by the authors. The titles were selected from the traits the authors stated were heavily loaded under each factor.

H. Adventurous vs. Shy. The low scoring individuals report themselves to be intensely shy, convinced of their inferiority, slow and impeded in expressing themselves, disliking occupations with personal contacts, preferring one or two close friends to large groups, and unable to keep in contact with all that is going on around them. Presumably this factor is a very important one in distinguishing suitability for those occupations demanding ability to face wear and tear in dealing with people and grueling emotional situations.

I. Sensitive vs. Tough. Group performance tends to be poorer with higher scoring individuals. Such individuals receive significantly more descriptions as fussing, hindering group performance in arriving at decisions, and making social-emotional negative (morale upsetting) remarks.

L. Suspicious, Cautious vs. Adaptable. In terms of criteria associations, the high scoring persons in group dynamic experiments are rated as unpopular, and groups averaging high in this trait are significantly less cohesive and have lower morale.

M. Unconventional vs. Practical. Higher scoring individuals tend to feel unaccepted in groups but unconcerned. They participate and make original leadership suggestions and are not immediately ignored, but their suggestions turn out to be rejected. They express significantly more dissatisfaction with the group unity and its regard for rules of procedure.

N. Shrewd vs. Vague. In group dynamics high scoring persons lead in analytical, goal-oriented discussion and in providing constructive solutions, while low scoring persons receive more checks as slowing and hindering proceedings.

O. Insecure vs. Confident. In group dynamics, high scoring persons do not feel accepted or free to participate, are considered shy, ineffective speakers, and hinderers, but remain religiously task-oriented in their remarks; they select few peers as friends, and have high standards of group conformity to rules. High scoring persons are strongly weighted against successful leadership in face to face situations, and are correlated significantly with accident proneness in automobile driving.

Q<sub>1</sub>. Experimental vs. Conservative. There is evidence that the high rated persons are more inclined to experiment with problems, solutions, and are less inclined to moralize. In group dynamics, the high rated persons contribute significantly more remarks to discussions with a high percentage of the remarks being of a critical nature.

Q<sub>2</sub>. Self-Sufficient vs. Dependent. The test items show persons who are resolute and accustomed to making their own decisions independently. At the lower pole are persons who go more with the group, definitely value social approval, and are conventional and fashionable.

In group dynamics, the high scoring persons are significantly more dissatisfied with group integration, make remarks which are more frequently solutions than questions, and tend to be rejected.

Q3. Will Controlled vs. Lax. According to loaded items, the high ranked persons show socially-approved character responses, self-control, persistence, foresight, consideration for others, and conscientiousness. In group dynamics a high score picks out persons especially who will be chosen as leaders, but even more so those who are effective rather than merely popular. They characteristically make more remarks than others, especially problem-raising and solution-offering, receive fewer votes as hinderers, and fewer rejections at the end of the sessions.

Q4. Excitable vs. Composed. Group dynamic experiments show that persons high in this trait rarely achieve leadership (but only at 5% significance level): they take a poor view of the degree of group unity, orderliness, and the existing leadership quality, and receive few votes (all beyond 1% significance level). The morale of effort dimension in small groups is at a higher level with lower scoring individuals.<sup>7</sup>

Cattell provided additional information to aid in the interpretation of the sixteen factors:

Both the source-trait title and the constituent trait-elements below are always listed in bipolar fashion, corresponding to the plus and minus sign of the letter indicating the whole bipolar factor. This shows the character of the source trait at both its poles, and reminds us that it is a 'dimension' of personality. Unlike abilities, personality factors have appreciable negative loadings in many variables, i.e., there are many performances for which a particular source trait can be a disadvantage as well as an advantage. In these lists the negative variables have always been reversed, so that the pole listed in the left column is always positive with regard to the factor.<sup>8</sup>

At another point, he explained the practice of lettering the BR (behavior rating) factors in alphabetical order. Those making the greatest contributions to individual differences in a collection of trait elements sampled evenly from the personality sphere are given first place. Thus, factors A and B (cooperation and intelligence) seem to affect more of the personality than does any other factor. He added, the order should

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<sup>7</sup>R. B. Cattell, D. R. Saunders, and G. F. Stice, op. cit., pp. 11-19.

<sup>8</sup>Raymond B. Cattell, Personality (New York: McGraw-Hill Book Company, 1950), pp. 57-58.

not be accepted too rigidly because it will vary somewhat in different samples, age, and social groups.<sup>9</sup>

The building principals in each school in the study administered the personality test to teachers in the team under their supervision. Testees were given these instructions:

1. The test they were about to take was not to be marked or signed in any way that it could be identified.
2. They were to read the instructions on the front page of the test booklet. This information included how the test was to be scored on the answer sheet; they were not to ponder a question but give the first, natural answer as it came to them; the test should be completed in a little more than half an hour; and to answer every question honestly as possible in terms of what was actually true about themselves.
3. One person in each group was to collect and mail the answer sheets.

### **Ratings on Each Personality Factor**

A score card was developed around the sixteen personality factors. The building principals made two ratings on each factor: one indicating their estimation at the time the teacher was assigned to the team, and the other showing values at the time of the study. A five-point scale, which appeared most frequently used in psychometric research (5-superior; 4-excellent; 3-average; 2-below average; and 1-poor), allowed estimates to be made along the bipolar continuum on each factor of the test. (See Appendix A.)

### **Development and Administration of the Criterion**

A criterion of performance for the inquiry was produced from the list of teaching abilities, skills, and activities provided by the judges. Ratings of performance were made on a five-point scale (5-superior; 4-excellent; 3-average; 2-below average; and 1-poor) which allowed estimates to be made on the performance of individuals and a total team performance. (See Appendix B.)

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<sup>9</sup>Ibid., p. 65.

In the development of the criterion of performance, special consideration was given Ryans' comments regarding the criterion problem in research. He expressed this proposition:

Generally speaking, a criterion is a standard or rule to provide a frame of reference for judging or testing something. It is a base, of a rather arbitrary nature and ultimately involving value judgments, against which comparisons may be made.<sup>10</sup>

In the same report he concluded that the criterion should have the following standards: (1) It should be free from bias; (2) It should be consistent, or reliable; and (3) It should be relatively convenient to use.

Stern, Stein, and Bloom described the development and application of the criterion in personality assessment:<sup>11</sup>

Thus, the first step in the empirical approach is the selection of a standard of performance which is considered to discriminate between adequate and inadequate performers. In practice, the standard of performance is some construct symbolizing success, skill, or competence which must then be quantified so as to constitute a criterion. The quantification may be achieved by means of ratings provided by 'significant others'--teachers, supervisors, commanding officers, etc.--who are ordinarily the ones to decide which of their subordinates are in fact successful. . . . In either case, the criterion is then applied as an index of discrimination between successful and unsuccessful performers on the job. The resulting groups of subjects, who are thus presumed to differ on the abstract standard of performance initially posited just as well as they differ on the criterion itself, are then employed as criterion groups in an attempt to validate predictive instruments through further testing and analysis.<sup>12</sup>

The school principals were the central figures among the judges. They were to work out cooperatively with other judges one score on each performance dimension for every individual as well as a total score for each team.

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<sup>10</sup>David G. Ryans, "Notes on the Criterion Problem in Research, With Special Reference to the Study of Teacher Characteristics," The Journal of Genetic Psychology, 90, 91:33-61, September, 1957.

<sup>11</sup>Ibid.

<sup>12</sup>G. G. Stern, M. I. Stein, and B. S. Bloom, Methods in Personality Assessment (Glencoe, Illinois: The Free Press, 1956), pp. 125-126.



## IV

# ANALYSIS OF RESULTS

To identify background and personality characteristics definitely associated with team performance, the background data and personality factor test scores of the teachers at different performance levels were compared with the team teaching criterion. By adding two other phases in the research design, it was possible to determine: (a) the accuracy of the school principals in making estimates of certain personality factors in their teachers; and (b) the value of a test in diagnosing individual personality.

To pursue these objectives required collection of the following data: (1) principals' estimates on the sixteen personality factors; (2) background characteristics; (3) personality test scores; and (4) performance ratings on each of the 101 teachers and 32 teams in the Jefferson County, Colorado, Public Schools. One team was dropped from the study after a discrepancy was noted in the reporting. The analyses in this chapter include the remaining 31 teams and 99 teachers.

### Team Performance

Teaching teams were grouped according to the total performance score obtained on the criterion in order that the distinguishing background and personality characteristics could be determined for the teachers in each group. This procedure resulted in 15 teams comprising 47 teachers in the high and 16 teams with a total of 52 teachers in the low categories. These estimates indicate the principals were satisfied with less than fifty per cent of the individual's and teams' performance. Since only a few characteristics were given consideration in the original placement, it was decided to check the principals' ability to estimate the dimensions on each of the sixteen personality factors among their teachers. It was reasoned that, should the principals prove to be effective in their judgment of the different variables, the need for a personality test would be eliminated.

### Principals' Rating on the Personality Characteristics of Teachers

At the time of this study, each school principal had known his teachers for at least six months and was closely associated with his teams' activities. The principals were asked to make two estimates on

each of the sixteen factors: one rating at the time the teacher was assigned to the team and another at the time of this research. These values were compared with the teacher's test scores recorded on The Sixteen Personality Factor Questionnaire.

Factor B (General Intelligence) was dropped after an examination was made of the test scores. Almost every teacher had scored the maximum on this factor with a small range of only three points between the highest and lowest scores recorded. Also influencing this decision was a statement in Cattell's handbook for use with the test. He stated this factor would not add personality information and was included only to give a general ability measure. To some extent the mental ability of these teachers was already known since all possessed at least a bachelor's degree.

Table II shows the principals' ability to make judgments on the various personality factors. Three things are apparent in the table: (1) The principals were most effective in evaluating those factors (A, F, H, I, Q<sub>4</sub>) which are more easily determined from overt behavior; (2) Knowing and observing a teacher for a period of time improved the principals' ability to assess certain factors (A, C, E, F, G, H, I, L, N, O, Q<sub>1</sub>, Q<sub>2</sub>, Q<sub>4</sub>), but did not help, and may even have hindered, accurate judgment on others (M, Q<sub>3</sub>); and (3) Some personality device is needed to improve the principals' accuracy in selecting and assigning leaders and members to teaching teams, especially when the teacher is relatively unknown.

## Background Characteristics

The biographical or background characteristic data were presented in several descriptive statistical forms. Chi-square values were obtained to show the degree of relationship which might be inferred between these characteristics and team performance. The same data were then reported according to individual and group distributions on each characteristic.

Table III contains the chi-square and probability values obtained on the background characteristics.

The judges had suggested the study should include an examination of the relationship between performance and size of the team or subject matter taught. Chi-square values on these two factors were not significant at the .05 level of confidence.

The characteristics found not significantly related to performance may also enhance the potential of team teaching in education. Provided with this information, the school principal may assemble teams of various sizes in any subject matter area, and staff these groups with teachers regardless of their ages, sex, years of teaching experience, or the

TABLE II

CHI-SQUARE VALUES EXPRESSING THE RELATIONSHIP BETWEEN SCHOOL PRINCIPALS' RATINGS AND ACTUAL PERSONALITY FACTOR TEST SCORES OF THE NINETY-NINE TEAM TEACHERS

Factor <sup>1</sup>	Chi-square at Time Teachers Assigned to Team	Chi-square at Time of Study	Probability of Values at Time of Study
A. Cooperative	7.44	26.46	>.05p*
C. Emotionally stable	11.81	14.07	<.05p
E. Aggressive	9.02	16.93	<.05p
F. Enthusiastic	15.75	32.70	>.01**
G. Conscientious	15.00	21.41	<.05p
H. Adventurous	12.15	28.17	>.05p*
I. Sensitive	7.10	27.88	>.05p*
L. Suspicious	9.42	14.60	<.05p
M. Unconventional	14.22	13.41	<.05p
N. Shrewd	10.44	15.82	<.05p
O. Insecure	13.61	15.65	<.05p
Q <sub>1</sub> . Experimental	10.79	17.35	<.05p
Q <sub>2</sub> . Self-sufficient	1.76	14.14	<.05p
Q <sub>3</sub> . Will controlled	7.02	6.64	<.05p
Q <sub>4</sub> . Excitable	8.96	27.21	>.05p*

<sup>1</sup>A description of the factors appears in Chapter III.

\* Significant at 5% level of confidence.

\*\*Significant at 1% level of confidence.

length of time that may have elapsed since they were enrolled in a college course. Teams may be strengthened by including teachers with college degrees above the bachelor's and through assignments of each person in his major field of academic preparation.

The last two characteristics in Table III, years performed as a team leader and years performed as a team member, were included to find the relationship between successful performance and the length of time leaders and members tended to remain in team teaching. Chi-square and probability values indicate that the individuals participating in high performance teams tended to continue their roles in these groups.

TABLE III

CHI-SQUARE VALUES OF RELATIONSHIP BETWEEN BACKGROUND CHARACTERISTICS  
AND TEAM PERFORMANCE OF THE NINETY-NINE TEAM TEACHERS IN THE  
JEFFERSON COUNTY, COLORADO, PUBLIC SCHOOLS

Characteristic	Chi-square	P
Age	1.02	NS <sup>1</sup>
Sex	1.78	NS
Teaching experience	1.66	NS
Recency of college training <sup>2</sup>	2.06	NS
Degree held	7.64	.01
Presently teaching in major, minor, other field	12.40	.001
Years performed as a team leader	9.46	.01
Years performed as a team member	13.52	.001

<sup>1</sup>NS--Not significant at .05 level of confidence.

<sup>2</sup>Recency of college training could have proved significant under other conditions. This school system rewards teachers with salary increases for earning additional college credit in their teaching field.

#### Distributions on Each Background Characteristic

In the original planning it had been assumed that sufficient statistical evidence would be provided this part of the study by finding the degree of relationship existing between certain background characteristics and the individual's performance in a teaching team. Further examination of these data, however, indicated that valuable information could be lost if the report did not include tables and discussion of the various distributions found on these variables.

#### Age

Table IV presents the age distributions of leaders and members on the basis of their performance level in team teaching.

As shown in the table, only a slight difference was found to exist between the median ages of high and low leaders, or between high and low members in the teaching teams. Of special interest in these distributions were differences found within these groups. High performing teams possessed leaders with a median age of 38.70 and members whose median age

was 25.18, a difference of 13.52 years. While low performing teams had leaders with a median age of 34.94 and members whose median age was 27.26, a difference of 7.68 years. This suggests that older, more mature and experienced individuals may assert effective leadership if the ages of the team members are significantly lower than their own. Since the chi-square values in Table III gave no significant relationship between age and performance, other biographical or personal variables could have affected these findings.

TABLE IV  
AGE DISTRIBUTIONS OF LEADERS AND MEMBERS BASED  
UPON LEVEL OF TEAM TEACHING PERFORMANCE

Individuals	Range	Median	Quartile Deviation <sup>1</sup>
High leaders	22-58	38.70	8.00
Low leaders	26-58	34.94	5.68
High members	22-51	25.18	5.04
Low members	22-55	27.26	5.24

<sup>1</sup>Quartile deviation--marks off exactly 25% of the ages just above and 25% of the ages just below the median.

### Sex

The study proceeded to seek possible differences in team teaching which might reflect better performance by men or by women. Table V compares the numbers of male and female teachers in the high and low performing teams.

Chi-square values obtained in Table V found the relationship between sex and team teaching performance not significant at the .05 level of confidence. It may be noted that in the high teams the number of men and women were approximately the same, whereas only one-third of the individuals in the low performing teams were women. The latter would indicate that in team teaching certain activities demand the skills, attitudes, and temperament frequently found in women instructors.

TABLE V  
DISTRIBUTIONS OF MEN AND WOMEN AT DIFFERENT  
TEAM TEACHING PERFORMANCE LEVELS

Groups	Number Males	Per Cent	Number Females	Per Cent
High performance	26	55.3	21	44.7
Low performance	34	65.4	18	34.6

Teaching Experience

The number of years teaching experience was found to have no significant relationship to a teacher's team performance. It was felt that quality instruction would be enhanced by the presence of one or more individuals in the teams who possessed many years of successful teaching experience. Knowing that teachers do not necessarily become unadaptable to new ideas or inflexible to change, permits placement of the experienced teacher, with certain other qualities, as a leader or member of an instructional group. Distributions on teaching experience among the teachers are shown in Table VI.

TABLE VI  
TEACHING EXPERIENCE OF LEADERS AND MEMBERS  
ACCORDING TO PERFORMANCE LEVEL  
IN TEAM TEACHING

Individuals	Range in Years	Median	Quartile Deviation
High leaders	2-24	8.50	4.00
Low leaders	4-33	10.18	4.48
High members	1-19	5.46	2.48
Low members	1-22	5.46	2.48

### Recency of College Training

The data obtained on recency of college training may serve only to reflect: (a) The teams in the study were adequately staffed with individuals who had recent academic training; and (b) The school district's philosophy and practice of rewarding the teachers for earning additional college credit in their teaching field.

TABLE VII

RECENCY OF COLLEGE TRAINING OF LEADERS AND MEMBERS  
AT DIFFERENT PERFORMANCE LEVELS

Individuals	Range in Years	Median	Quartile Deviation
High leaders	1-18	2.98	1.22
Low leaders	1-5	2.66	1.06
High members	1-17	2.62	1.06
Low members	1-7	2.90	1.20

At the time of the study, seventy-five per cent of the ninety-nine team leaders and members had received credit for a college course within the last four years. This may be explained, in part, by the fact that seventy-five per cent of the teachers were less than thirty-two years of age. There is also the possibility that those teachers who continue to seek additional college training possess the personal qualities to be outstanding teachers in team teaching.

### Degree Held

The relationship between the degrees held by teachers at different team performance levels proved to be significant at the .01 level of confidence in Table III. Each individual in the sample possessed at least a bachelor's degree. The number of bachelor's and master's degrees at the various levels of performance are shown in Table VIII.

The distribution in Table VIII provides supporting evidence for those chi-square values obtained on this characteristic in Table III. Approximately one-half of the teachers in the high performing teams possessed master's degrees while in the low groups there were less than one-third of the individuals with the advanced degree. This suggests that additional college preparation may have given these teachers the knowledge and skills to function successfully in team teaching.

TABLE VIII

NUMBER AND PER CENT OF MASTER'S AND BACHELOR'S DEGREES  
HELD BY TEACHERS AT VARYING LEVELS  
OF TEAM PERFORMANCE

Groups	Number of Teachers with Master's Degrees	Per Cent	Number of Teachers with Bachelor's Degrees	Per Cent
High performance	22	46.8	25	53.2
Low performance	16	30.8	36	69.2

Present Teaching Assignment

A strong relationship, significant at the .001 level, was found in Table III between the teachers' performance and assignment to teach in their major field of academic preparation. Table IX presents a distribution of the teachers on this characteristic.

TABLE IX

NUMBER AND PER CENT OF TEAM TEACHERS ASSIGNED TO TEACH  
IN MAJOR, MINOR, OR OTHER FIELD OF PREPARATION  
ACCORDING TO LEVEL OF PERFORMANCE

Groups	In Major Field	Per Cent	In Minor Field	Per Cent	In Other Field	Per Cent
High performance	41	87.2	5	10.6	1	2.2
Low performance	23	44.2	26	50.0	3	5.8

The school principals evidently had made an effort to place in the teams teachers with at least a minor preparation in the subject



being taught. Only four of the ninety-nine teachers were assigned to teach a course without the minor preparation which is normally required. In Table IX there is every indication that differences found in the performance of the teaching teams may have resulted from the large number of teachers in the high group teaching in their major field of preparation. Almost ninety per cent of the teachers in the high group were teaching in their major field as compared with less than fifty per cent in the low.

#### Years As A Team Leader

The number of years a person continued as the team leader was, in Table III, significantly related to the groups' teaching performance. Results on this characteristic were affected somewhat by the presence of teams in their first year of performance. Despite this distortion, the distribution in Table X reflects the tendency for high performing leaders to remain in their role, as well as a turnover noted in the same position within the low groups.

TABLE X  
TENURE DISTRIBUTIONS OF LEADERS AT HIGH AND  
LOW TEAM PERFORMANCE LEVELS

Individuals	Range in Years	Median	Quartile Deviation
High performance	1-5	3.30	.30
Low performance	1-4	1.44	.81

#### Years Performed As A Team Member

Team members who participated in successful teams also tended to remain in their group. The median number of years for members of the high groups was 3.47 as compared to 1.38 found in the low as shown in Table XI.

Over fifty per cent of the high performing team members were in their fourth and fifth years of participation in these groups. This differs appreciably from the twenty-five per cent of teachers in the low groups with three or more years in team teaching.

TABLE XI

TENURE DISTRIBUTIONS OF TEAM MEMBERS AT HIGH  
AND LOW LEVELS OF PERFORMANCE

Individuals	Range in Years	Median	Quartile Deviation
High members	1-5	3.47	.63
Low members	1-5	1.28	.85

### Personality in Team Teaching

In order to identify the personality traits which appeared to characterize members of high performance teams, a contrasting group validation method was employed. On the basis of the criterion measure of total team performance, teams were grouped as (HH) high-high; (LH) low-high; (HL) high-low; and (LL) low-low. (Each of the nine schools had at least one team in the high-high group.)

For validation, the HH and LL individuals' performance was contrasted with their personality factor test scores. The premise was that, if the personality scores distinguished extreme or contrasting groups, then the scores were valid for prediction on the criterion.

The analyses in this section are on the twenty-eight teachers in the high and thirty teachers in the low validation groups. To test the significance of personality, it was necessary first to compute a mean, standard deviation, and standard error score on each factor within the two groups.

Table XII contains the scores derived for the high validation group.

In the personality test, factors were listed in bipolar form. Mean scores found in Table XII represent a dimension or the bipolar continuum for each factor in the high validation group. Since the table only includes descriptive behavior at the high pole, a low mean score implies that these teachers are exactly the opposite. According to the high mean scores, the teachers in the high validation group are cooperative, emotionally stable, aggressive, enthusiastic, conscientious, adventurous, experimental, and will controlled. Low scores indicate they are, as a group, not sensitive, suspicious, insecure, unconventional, self-sufficient, or excitable.

TABLE XII

MEANS, STANDARD DEVIATIONS, AND STANDARD ERRORS OF MEANS  
ON EACH PERSONALITY FACTOR FOR TEAM TEACHERS  
IN HIGH VALIDATION GROUP

Factor <sup>1</sup>	N	$\bar{X}$	SD	SE
A. Cooperative	28	15.73	1.75	.31
C. Emotionally stable	28	17.19	2.93	.51
E. Aggressive	28	15.67	2.46	.43
F. Enthusiastic	28	14.76	2.62	.46
G. Conscientious	28	13.44	2.35	.41
H. Adventurous	28	15.89	3.21	.56
I. Sensitive	28	8.88	2.83	.49
L. Suspicious	28	6.89	2.93	.51
M. Unconventional	28	8.62	2.78	.49
N. Shrewd	28	14.90	3.13	.55
O. Insecure	28	8.88	2.65	.46
Q1. Experimental	28	14.00	2.58	.45
Q2. Self-sufficient	28	8.00	1.97	.35
Q3. Will controlled	28	12.86	1.88	.33
Q4. Excitable	28	9.44	2.83	.49

<sup>1</sup>The letters in this column correspond to those used in The Handbook for the Sixteen Personality Factor Questionnaire. The verbal titles were selected from traits the authors stated to be highly loaded in each factor.

Table XIII presents the scores found on teachers in the low validation group. In general, the teachers in the low group were found to be the opposite of teachers in the high group. They were especially low in those attributes usually associated with successful group performances; such as cooperativeness, emotional stability, aggressiveness, enthusiasm, shrewdness, experimentalism, self-sufficiency, and strong will power. At the other end of the continuum they scored high on those factors which have a negative effect on group activities; such as sensitivity, suspiciousness, insecurity, and excitability or nervous tension.

TABLE XIII

MEANS, STANDARD DEVIATIONS, AND STANDARD ERRORS OF MEANS  
ON EACH PERSONALITY FACTOR FOR TEAM TEACHERS  
IN LOW VALIDATION GROUP

Factor <sup>1</sup>	<u>N</u>	<u><math>\bar{X}</math></u>	<u>SD</u>	<u>SE</u>
A. Cooperative	30	9.32	2.62	.52
C. Emotionally stable	30	10.44	2.81	.56
E. Aggressive	30	9.43	2.32	.46
F. Enthusiastic	30	10.81	3.34	.67
G. Conscientious	30	10.92	2.00	.40
H. Adventurous	30	11.37	2.25	.45
I. Sensitive	30	11.26	2.53	.51
L. Suspicious	30	12.28	3.34	.67
M. Unconventional	30	13.50	2.66	.53
N. Shrewd	30	7.20	2.25	.45
O. Insecure	30	13.25	3.92	.78
Q1. Experimental	30	7.50	2.44	.49
Q2. Self-sufficient	30	10.27	3.41	.68
Q3. Will controlled	30	9.91	2.66	.53
Q4. Excitable	30	14.28	3.26	.65

<sup>1</sup>The letters in this column correspond to those used in The Handbook for the Sixteen Personality Factor Questionnaire. The verbal titles were selected from traits the author stated to be highly loaded in each factor.

#### Test of Significance

Fisher's  $t$  test was used to test the significance of differences in means on each personality factor between the high and low validation groups. Table XIV contains the results of this statistical procedure.

The mean differences between the two groups proved to be significant at the .01 level of confidence on each personality factor in the test. These results are comparable to findings noted in other research, that is, the good teachers normally reflect opposite characteristics to those found in poor teachers.

On the basis of the large  $t$  scores, a "marked" degree of difference appeared between the cooperativeness, emotional stability, aggressiveness, shrewdness, and experimental nature of the team teachers in the high and low validation groups. However, since all factors were

found significant at the .01 level of confidence, it must be assumed that a certain amount of each attribute is prerequisite to successful performance in team teaching. To determine this factor level, raw scores of the teachers in the high performance categories were selected from the personality test.

TABLE XIV  
DIFFERENCE BETWEEN MEANS, STANDARD ERROR OF DIFFERENCES,  
AND  $t$  RATIOS OF HIGH AND LOW VALIDATION GROUPS  
ON EACH PERSONALITY FACTOR

Factor <sup>1</sup>	<u>D</u>	<u>SE</u>	<u>t</u>	<u>P</u>
A. Cooperative	6.41	.61	10.51	.01
C. Emotionally stable	6.75	.76	8.88	.01
E. Aggressive	6.24	.63	9.90	.01
F. Enthusiastic	3.95	.81	4.88	.01
G. Conscientious	2.52	.57	4.42	.01
H. Adventurous	4.52	.72	6.28	.01
I. Sensitive	2.38	.71	3.35	.01
L. Suspicious	5.39	.84	6.42	.01
M. Unconventional	4.88	.72	6.78	.01
N. Shrewd	7.70	.71	10.85	.01
O. Insecure	4.37	.91	4.80	.01
Q1. Experimental	6.50	.67	9.70	.01
Q2. Self-sufficient	2.27	.76	2.99	.01
Q3. Will controlled	2.77	.62	4.47	.01
Q4. Excitable	4.84	.81	5.98	.01

<sup>1</sup>The letters in this column correspond to those used in The Handbook for the Sixteen Personality Factor Questionnaire. The verbal titles were selected from traits the author stated to be highly loaded in each factor.

#### Analysis of Personality Factor Test Scores

A primary objective was to evaluate the usefulness of a personality test in the selection and assignment of teachers to instructional groups. This was to be accomplished through prudent selection of minimum or critical scores recorded by high-performing team teachers on each factor in the personality inventory.

Fifteen teams with a total of forty-seven teachers were judged to be performing at the two high levels on the criterion. Critical scores for the forty-seven leaders and members as well as the team averages on each factor are displayed in Table XV.

TABLE XV  
SELECTED SCORES OF HIGH PERFORMANCE MEMBERS, LEADERS,  
AND TEAMS ON EACH PERSONALITY FACTOR

Factor <sup>1</sup>	Raw Score Possible	Team Members	Team Leaders	Team Average
A. Cooperative	20	12.0	14.6	14.5
C. Emotionally stable	26	13.2	16.9	15.6
E. Aggressive	26	11.3	15.1	15.0
F. Enthusiastic	26	12.6	15.7	14.2
G. Conscientious	20	13.5	14.8	13.7
H. Adventurous	26	11.0	15.6	14.8
I. Sensitive	20	-13.7	- 9.9	- 9.0
L. Suspicious	20	- 8.2	- 6.0	- 7.5
M. Unconventional	26	-11.1	- 8.7	- 9.9
N. Shrewd	20	10.6	13.2	14.4
O. Insecure	26	-10.0	- 8.8	- 9.2
Q1. Experimental	20	12.2	14.7	13.6
Q2. Self-sufficient	20	-10.9	- 8.0	- 8.9
Q3. Will controlled	20	11.7	14.0	12.8
Q4. Excitable	26	-12.3	- 8.4	-10.0

<sup>1</sup>Factors in the table are lettered according to the author's listings. The verbal descriptions were taken from traits purported to be highly loaded in these factors.

Note: Minus (-) scores indicate all scores were as low as or lower than that number. Other scores were as high as or higher than these numbers.

From the scores in Table XV, the team leaders proved to be superior to the members on every factor. Leaders appeared to be considerably more emotionally stable, aggressive, enthusiastic, experimental, adventurous, shrewd and will controlled than their team members. They also were significantly less sensitive, suspicious, unconventional, insecure, and excitable. Scores on these positions are important in that no leader or member in the high performing teams recorded a score lower than the positive, or higher than the minus figures given in the table.

The team average on each factor gave indication of being the most important score for use in predicting performance. Even though leaders and members had scores above or below the group average, these teams according to the criterion were still able to give a high level of performance in team teaching. The expected behavior in the group may be explained in either of two ways: (1) Assigning leaders and members with high scores on a factor may offset the presence of a low scoring individual; or (2) A person showing a deficiency in the particular trait may respond with a higher level of skill or behavior if surrounded by teachers who display exceeding amounts of this characteristic.

### Summary

The original data collected in the investigation consisted of: (1) judges' ratings of team performance on the criterion; (2) two estimates of each principal's ability to evaluate certain personality traits in his teachers; (3) background data on each teacher in the sample; and (4) personality test information on both leaders and members in the teaching teams.

In this chapter these data were subjected to different statistical analyses to: (a) find the degree of relationship between certain background characteristics of the teachers and their performance; (b) determine the significance of selected personality factors at different levels of performance in team teaching; and (c) examine the principals' estimates of personality factors as compared to questionnaire responses of their teachers.

## V

# CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

The study was designed to determine whether noted differences between the performance of teaching teams, functioning in the same setting, could be attributed to the teachers. In order that the findings be of practical value in grouping teachers effectively, the investigation also explored two possible methods of obtaining accurate dimensions on various personality traits.

The proposed objectives required that the study proceed according to the following steps: (a) adopt a research design compatible with authoritative reports in the literature on personality and teaching; (b) select participants and secure permission for their involvement; (c) obtain or develop devices for gathering the necessary data; (d) instruct judges on the administration of each instrument and tests; (e) assemble and treat data; and (f) report findings and make recommendations.

The Jefferson County, Colorado, Public Schools provided the research setting. Selection was based upon: (1) the author's experience in the school system; (2) the district was in its fifth year of participation in the staff utilization studies; and (3) the assumption that participants from the same school systems would not reflect team performance differences which could be attributed to situational variance.

Instruments used to obtain the necessary data were: (1) a biographical inventory; (2) a criterion of individual performance in the teaching teams; (3) a score card for the school principal's estimates on dimensions of personality; and (4) The Sixteen Personality Factor Questionnaire.

Statistical analyses of the data included: (a) chi-square values to indicate the degree of relationship between background characteristics and the teacher's team performance; (b)  $t$  tests to reflect the significance of mean differences computed on each factor for high and low validation teams; (c) chi-square values to show relationship between the principal's estimates and the teacher's test score on the personality factor questionnaire which could be used in the selection and assignment of members and leaders to instructional groups.



## Conclusions

Each phase of the study produced results which are of value in grouping teachers into teaching teams. Based upon the statistical analyses the more important findings were:

1. According to the judges' ratings on the criterion less than one-half of the teaching teams were exhibiting a high level of performance.
2. The need for a test of personality was established when it was found the principals were not able to estimate accurately trait dimensions in their teachers.
3. There was a strong relationship between the degree held by teachers and their ability to perform successfully in an instructional group. Those persons assigned to teach in their major field of preparation also made better team members than did the teachers with a minor or less in the subject being taught. The background characteristics of age, sex, teaching experience, and years since college were found not significantly related to team performance. No differences were noted in group performance because of team size or the subject being taught.
4. High performing teams, according to questionnaire responses, were composed of teachers who were especially cooperative, emotionally stable, aggressive, adventurous, experimental, and will controlled.
5. Low performing team members were found to be the exact opposite of teachers in high groups. They may be described as being uncooperative, unstable, and not too aggressive, adventurous, experimental, or will controlled. They were also more sensitive, suspicious, unconventional, insecure, and excitable than those teachers in the high performing teams.
6. Leaders in the high groups scored more favorably on each personality factor than their team members. In traits of emotional stability, enthusiasm, adventurousness, shrewdness, experimentalism, and self-control leaders appeared superior to the members.
7. Critical scores were selected on each personality factor to be used in selecting leaders and members for instructional groups. The scores represent measures which should be observed for effective team performances.

From the preceding analysis and interpretations, a workable set of criteria may be derived for administrators to use in the selection and assignment of leaders and members to teaching teams.

Criterion I. There must be an administrative philosophy which, through certain practices, indicates to the teachers faith in the team method of teaching. This may be accomplished through: (a) salary increments; (b) flexible scheduling; (c) building modifications; (d) publicity; and/or (e) prudent selection and assignment of leaders and members to teaching teams.

Criterion II. Persons selected as team leaders should: (a) be older and more experienced than their team members; (b) possess a master's degree and/or show evidence of professional and personal improvement through frequent college attendance; (c) be assigned to teach in their major field of academic preparation; and (d) reflect through their observed behavior or test results traits of cooperativeness, emotional stability, aggressiveness, enthusiasm, adventurousness, shrewdness, experimentalism, and will control.

Criterion III. Selection of team members may be made without undue regard to sex, teaching experience, and years since they attended college. Teachers are potentially better members if somewhat younger than their team leader; have a master's degree, and/or show through frequent college attendance a desire for personal and professional improvement; and are assigned to teach in their major field of academic preparation.

Teachers who are cooperative, emotionally stable, aggressive, adventurous, experimental, and will controlled may be expected to perform successfully as team teachers. This role, however, could be affected if the teacher shows evidence of being overly sensitive, suspicious, unconventional, insecure, or excitable.

### Limitations of the Findings

The study was not an attempt to prove the merit of team teaching. Its major purpose was to identify those background and personality characteristics associated with successful performance in team teaching and explore various methods of obtaining trait dimensions in teachers. Use of the results, however, are subject to the following restrictions:

1. The findings are based upon empirical data. Inference or conclusions are made from probability estimates and should, therefore, be considered only as approximate.

2. Use of the results are appropriate when applied to populations not too dissimilar to the persons employed in this investigation.
3. Factor dimensions of personality for leaders, members, and teams were selected from responses to questions on one test. Their use in prediction of team performance may have been improved if the scores had come from several tests of personality.

### **Recommendations for Further Research**

The present study should be considered only an exploration into one aspect of team teaching. Other research must be expected and encouraged to improve the status of this method of instruction. The following suggestions for further research are made with the hope that they will stimulate experimentation in several areas associated with teacher participation in teaching teams:

1. Investigate the performance of teaching teams in different settings.
2. Compare student achievement in team teaching with other methods of instruction.
3. Study the influence of individuals on total team performance.
4. Investigate various types of leadership.
5. Study attitudes and influence of teachers not assigned to teaching teams.
6. Compare the performance of different type teams.
7. Study teachers and teams performing in elementary schools.
8. Identify physical, intellectual, and personality characteristics associated with teacher performance in both large and small group activity in team teaching.

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# Appendix A

## RATING SCALE ON TEACHER IN TEACHING TEAM

1. School: \_\_\_\_\_ . 2. Teaching Team # \_\_\_\_\_ .
3. Subject or subjects taught by team: \_\_\_\_\_ .
4. Teacher first assigned to team: \_\_\_\_\_ 1957-58; \_\_\_\_\_ 1958-59;  
\_\_\_\_\_ 1959-60; \_\_\_\_\_ 1960-61; \_\_\_\_\_ 1961-62.
5. Years teacher has been in team teaching: \_\_\_\_\_ 1; \_\_\_\_\_ 2; \_\_\_\_\_ 3;  
\_\_\_\_\_ 4; \_\_\_\_\_ 5.
6. Years teacher performed as a team leader: \_\_\_\_\_ 1; \_\_\_\_\_ 2; \_\_\_\_\_ 3;  
\_\_\_\_\_ 4; \_\_\_\_\_ 5; \_\_\_\_\_ None.
7. Total effectiveness of teacher in the teaching team:
  - a. \_\_\_\_\_ Inferior, i.e., performance considered unacceptable in teaching team.
  - b. \_\_\_\_\_ Below average, i.e., performance considered barely acceptable in teaching team.
  - c. \_\_\_\_\_ Average, i.e., performance considered generally acceptable in teaching team.
  - d. \_\_\_\_\_ Above average, i.e., performance considered almost always acceptable in the teaching team.
  - e. \_\_\_\_\_ Superior, i.e., performance considered always acceptable in the teaching team.

### Personality Factor Ratings

The personality factors presented below are those which appear on the questionnaire taken by the teachers. On these ratings please give your best objective, professional judgment regarding the dimensions of each factor in this teacher.

Two ratings are asked for on each factor. Prior rating refers to your estimate of the teacher on a given factor at the time of assignment to the team. Present rating refers to your estimate as of now.

Indicate your rating by circling the number that corresponds most closely to the key in No. 7 above:

<u>FACTORS</u>	<u>PRIOR RATING</u>					<u>PRESENT RATING</u>				
Cooperativeness . . . . .	1	2	3	4	5	1	2	3	4	5
General Intelligence . . . . .	1	2	3	4	5	1	2	3	4	5
Emotional Maturity . . . . .	1	2	3	4	5	1	2	3	4	5
Aggressiveness . . . . .	1	2	3	4	5	1	2	3	4	5
Enthusiasm . . . . .	1	2	3	4	5	1	2	3	4	5
Conscientiousness . . . . .	1	2	3	4	5	1	2	3	4	5
Adventurousness . . . . .	1	2	3	4	5	1	2	3	4	5
Sensitivity . . . . .	1	2	3	4	5	1	2	3	4	5
Suspicious, Cautious . . . . .	1	2	3	4	5	1	2	3	4	5
Unconventional . . . . .	1	2	3	4	5	1	2	3	4	5
Shrewdness . . . . .	1	2	3	4	5	1	2	3	4	5
Insecurity . . . . .	1	2	3	4	5	1	2	3	4	5
Experimentalism . . . . .	1	2	3	4	5	1	2	3	4	5
Independence . . . . .	1	2	3	4	5	1	2	3	4	5
Will Control . . . . .	1	2	3	4	5	1	2	3	4	5
Excitability . . . . .	1	2	3	4	5	1	2	3	4	5



# Appendix B

## TEACHING TEAM PERFORMANCE

### Rating Schedule

Circle the number for each performance factor that indicates your best professional judgment of the total team's performance in each of the following characteristic team functions. Use the following key in arriving at your rating decisions.

1. Inferior, i.e., performance considered unacceptable in teaching team situation.
2. Below average, i.e., performance considered barely acceptable in teaching team situation.
3. Average, i.e., performance considered generally acceptable in teaching team situation.
4. Above average, i.e., performance considered almost always acceptable in teaching team situation.
5. Superior, i.e., performance considered always acceptable in teaching team situation.

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FUNCTION	RATING
1. General academic ability . . . . . (Professional preparation)	1 2 3 4 5
2. Teaching experience . . . . . (Adequacy of teaching background)	1 2 3 4 5
3. Cooperation . . . . . (Ability to work together)	1 2 3 4 5
4. Adaptability . . . . . (Adjustment, flexibility)	1 2 3 4 5
5. Creativity . . . . . (Develop and use new ideas of content and materials)	1 2 3 4 5
6. Organization and planning . . . . . (Proper utilization of time, materials, and space)	1 2 3 4 5
7. Enthusiasm . . . . . (Attitude toward program)	1 2 3 4 5
8. Evaluation of students . . . . . (Able to use tests and records in grouping, teaching, and testing)	1 2 3 4 5
9. Utilization of competencies . . . . . (Ability to determine and use competencies of each team member)	1 2 3 4 5

- 10. Discipline . . . . . 1 2 3 4 5  
(Pupil misbehavior is not a problem)
  - 11. Pupil achievement . . . . . 1 2 3 4 5  
(Records indicate a high level of  
pupil achievement)
  - 12. Attitudes toward student . . . . . 1 2 3 4 5  
(Alert to needs, abilities, and interests)
  - 13. Confidence . . . . . 1 2 3 4 5  
(Belief that the program will produce  
satisfactory results)
- 

- 14. Teaching effectiveness . . . . . 1 2 3 4 5
    - in large groups . . . . . 1 2 3 4 5
    - in regular groups . . . . . 1 2 3 4 5
    - in small groups . . . . . 1 2 3 4 5
    - in individual instruction . . . . . 1 2 3 4 5
- 

- 15. Total Team Performance . . . . . 1 2 3 4 5

# Appendix C

## TEACHER BIOGRAPHICAL INFORMATION

1. Your present position (school): \_\_\_\_\_.
2. Number professional staff members in team: \_\_\_\_\_.
3. Sex: M \_\_\_\_\_; F \_\_\_\_\_.
4. Age: \_\_\_\_\_.
5. Number years teaching experience (include present year): \_\_\_\_\_.
6. Highest degree: Doctorate \_\_\_\_\_; Masters \_\_\_\_\_; Bachelors \_\_\_\_\_.  
Have you taken additional college courses above the degree indicated? Yes \_\_\_\_\_; No \_\_\_\_\_.
7. Field of academic preparation: Major \_\_\_\_\_;  
Minor \_\_\_\_\_.
8. Number years since last enrolled in a college course  
(include current year): \_\_\_\_\_.
9. Subject or subjects taught in the team: \_\_\_\_\_.
10. Number years experience in team teaching (include current year):  
Member \_\_\_\_\_; Leader \_\_\_\_\_.
11. Is your building specially designed for team teaching?  
Yes \_\_\_\_\_; No \_\_\_\_\_.
12. Is the daily or weekly time schedule modified to accomodate  
special programs of the teaching teams? Yes \_\_\_\_\_; No \_\_\_\_\_.