FACTORS PRESENT DURING THE DEVELOPMENT OF EXEMPLARY INTERDISCIPLINARY TEAMS IN MIDDLE LEVEL SCHOOLS

by

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The purpose of this study was to identify common elements in the experience of exemplary interdisciplinary teams in middle level schools, to assess their value in team progress as perceived by teachers, to determine to what degree the results support current theory, and to identify variations in exemplary teams' practices. In this study, an interdisciplinary team is a group of two to five teachers responsible for instructing a common group of students in the core subjects—mathematics, science, social studies, and language arts—during a four or five period block in the daily schedule, with two planning periods daily—one for team planning and the other for individual planning.

Interdisciplinary team organization is one system widely acknowledged as a method of promoting collaboration for teachers and small social groups for students. However, to benefit teachers and students, these teams must operate effectively. Erb and Doda (1989) have proposed a complete model of team development measures, including four domains of teaming—organization, attention to students, shared responsibility and growth, and instructional coordination—
and factors which promote team growth. Teachers' perceptions of these factors' importance can help persons developing effective teams.

Team members at twelve Virginia middle level schools were surveyed and observed. Sixteen teams from small, medium, and large schools serving a variety of socio-economic groups qualified as exemplary teams by their activities on all four domains. Analysis of team practices revealed that coordination with non-team teachers, use of uniform discipline policies and scheduling guidelines, and observing peers' teaching and proposing staff development programs were activities conspicuous by their absence on exemplary teams. Analysis of the qualitative data revealed that exemplary teams concentrated on one of three different areas--administration, curriculum, or change to new activities--and that some teams might use collaboration to perpetuate poor pedagogical practices. Teachers valued training, support, and activities in their teams' development, but reported school organization and decision-making structure as less important. Analysis includes a model relating nearly 60% of the variation in team expertise to team members' respect for individuality in the context of strong team identity, and whole-school work environment.
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I am very grateful for the dedicated teachers and administrators who shared their valuable time and teaming expertise so that others might learn from their experience.

Inspiration came from my father whose intelligence, unique learning style, and persistence are an inspiration; my mother who valued education and encouraged and supported all of us; and, my children who daily remind me that life is a joyous learning experience.
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CHAPTER 1

Interdisciplinary team organization has been advocated as an appropriate instructional organization for effective middle level schools (Goodlad, 1990; Holmes, 1986; Lipsitz, 1984). The theory of interdisciplinary team organization addresses the concerns of collegiality for teachers and small social groups for students. It represents a major change for teachers and students from the relative isolation of the traditional classroom. It is important for practitioners to know what conditions can be significant in successfully making this change. According to theory, teams progress through various stages over time (George, 1982). In practice, however, some teams reach high levels of operation early and others may never progress beyond cooperating on simple organizational tasks (Epstein & Maclver, 1990). The reasons for these differences are not clear.

The basic definition of interdisciplinary team organization—in which two to five teachers of two or more subjects have shared space, schedule, and students (Alexander & George, 1981)—includes only a few of the many elements which may affect a team's development. One developmental model offered by Erb and Doda (1989) includes four domains of team activity. While some research is confused by the widely varying definitions of "interdisciplinary team", there is even more limited study
of the factors experienced during the development of exemplary teams which are expert on all four of these domains. Investigation of factors proposed as necessary to effective team development by Alexander and George (1981), Epstein and Maclver (1990), Erb and Doda (1989), George and Stevenson (1988), and Plodzik and George (1989) might clarify existing research and yield valuable information to persons planning team implementation or to those attempting to sustain teams.

Background

Interdisciplinary team organization represents one attempt to implement two important recommendations of effective schools research--increased teacher decision making and collegiality and small social groups for students (Goodlad, 1990; Lieberman & Miller, 1986, 1990; Lipsitz, 1984). Following a national survey, Maclver and Epstein (1990) estimated that about 42% of early adolescents are taught in some form of interdisciplinary team organization at some time during grades five through eight. The forms of this organization, however, vary broadly. The definition of an interdisciplinary team used most often in the literature is one in which a group of two to five teachers shares the responsibility for instruction of a common group of students in two or more subjects, has the same schedule, including some common planning time, and uses the same area of the
building (Alexander & George, 1981). Experts generally agree that interdisciplinary team organization, when operating effectively, does have positive effects on school atmosphere and is a desirable organizational form (Arhar, Johnston & Markle, 1988). Poorly functioning teams, however, can actually have a detrimental effect on the instructional program (Epstein & McIver, 1988). Experts do not agree on what specific experiences and environmental factors result in effective teams, according to current literature.

George (1984, 1990) and Erb and Doda (1989) claim that creation of a working team is an evolutionary process in which teams within a school system and even within the same building operate at different levels of collegiality and decision making as demonstrated by varying activities. Team organization and its consequent collegiality represents a radical departure from old school norms of teacher isolation. According to middle school literature, progress in this evolution is often left to the devices of the formerly isolated teachers without specific training in group processing skills, and other teaming techniques. Team organization, including planning time, proximity, and the same group of students may aide in the formation of effective teams by allowing more time for teacher interaction, but it is clearly not sufficient to foster effective teams in many cases. Models of the development of
a team suggest that they proceed at varying rates. One such model proposed by Erb and Doda (1989) includes four domains:

Domain 1: Organizational
Domain 2: Attention to Students
Domain 3: Shared Responsibility and Growth
Domain 4: Coordination of Instruction

Specific behaviors characterize each domain (see Figure 1). The most effective teams are active in all four domains.

As each team develops, members are influenced by many factors beyond the requirements of shared students and planning time. A wide variety of enabling factors, including teacher characteristics, demographic variables, the work environment, administrative and community support, and teacher training have been proposed by theorists and researchers as essential to effective teams (Alexander & George, 1981; Epstein & Maclver, 1990; Erb & Doda, 1989; George and Stevenson, 1988; Plodzik & George, 1989).
DOMAIN 1: TEAM ORGANIZATION

Holds regular, scheduled meetings
Uses guidelines for conduct at meetings
Writes agendas for meetings
Keeps a file with copies of meeting agenda
Appoints or elects a member to keep meeting minutes
Receives input from all members in discussions
Follows through on team decisions
Has a team leader
Evaluates team functioning
Clarifies and resolves disputes in meetings

DOMAIN 2: ATTENTION TO STUDENTS

Prepares as a team for student/parent conferences
Uses the same discipline structure in all classes
Recognizes student accomplishment as a team
Meets as a team with special needs teachers
Has and uses team guidelines for student scheduling and schedule changes
Reschedules students within teams if needed
Maintains a team test/project calendar
Meets as a team to discuss a students' problems and determines solutions
Takes students on team outings
Introduces new student procedures as a team

Figure 1: Activities characteristic of the levels proposed in Erb and Doda's model of interdisciplinary team development.
DOMAIN 3: SHARED RESPONSIBILITY AND GROWTH

Shares information from courses, conferences
Pools information for one member to call parent
Shares ideas about classroom practice
Discusses general problems and solutions
Writes team bulletin or newsletter to parents
Has each member keep all records for some students
Member observe and provide feedback in others' classrooms
Plan as a team for in-service days
Decide as a group how to spend team funds
Makes suggestions to administration by representative

DOMAIN 4: COORDINATION OF INSTRUCTION

Teaches cross-subject skills in all classes
Coordinates test, project, homework due dates
Members are aware of units taught by others
Members time units to overlap for reinforcement
Review textbooks as a team
Recommend material and textbook purchase considering coordination of instruction
Introduce new instructional techniques as a team
Plan interdisciplinary units
Teach interdisciplinary units
Discuss curriculum in regular meetings

Figure 1: Activities characteristic of the levels proposed in Erb and Doda's model of interdisciplinary team development (continued).
Rationale

Specific research on the elements surrounding team growth is limited. Research shows that in teamed and non-teamed situations, teachers' perceptions of their roles, as well as their actual behavior, are radically different, and suggests that teacher interaction, administrative support and practices, and general school norms may affect these perceptions and behaviors (Doda, 1984a). Additional research has been done on the effects of some variables on team development and commitment (George & Stevenson, 1988; Maciver & Epstein, 1990; Plodzik & George, 1989).

One problem with such research is that the definition of interdisciplinary team organization varies widely. A second problem is that most research seems to be in the form of surveys to building principals, not to team members. A comprehensive description of the factors encountered during the growth of teams expert on all four domains of Erb and Doda's (1989) model from the viewpoint of team members has not been done.

In order to avoid confusion among the many, varying meanings given to the term "interdisciplinary team", I will use the following definition in this study: An interdisciplinary team is a group of two to five teachers who share the responsibility of teaching the core subjects --science, mathematics, social studies, and language arts-- to a group of students during a block of four or five
periods in the daily schedule, and have two planning periods
daily—one common time for team planning, and one for
individual planning (Gatewood, Cline, Green & Harris,
submitted for publication).

Purpose

The purpose of this study is to identify common
elements in the experience of exemplary interdisciplinary
teams, to assess their value in team progress as perceived
by teachers, to determine to what degree the results support
current theory, and to identify variations in exemplary
teams' practices.

Research Questions

1. Where in Virginia is a sample of teams which have
been in operation for at least two years, have at
least 50% of their original members and fit the
definition of "interdisciplinary team" used in this
study?

2. In which of the teaming activities listed in Figure
1 do these groups participate? In light of these
activities, which of these teams fit the definition
of exemplary teams on the model?

3. Which factors of those listed in Figure 2
and what environmental factors accompanied
exemplary teams' progress according to team
members' perceptions and what effect did these
factors have on the teams' progress?
4. Do these common factors and activity patterns differ among exemplary teams?

5. Do the results of this study support current theory about necessary elements for team growth?

6. Is there a group of these factors which can account for a large portion of variation in team expertise?

Significance

Interdisciplinary team organization cannot benefit students until the teaching team progresses beyond the stress of early organization and turns to activities affecting students. School systems devote considerable time and money to teaming. Contrary to the assumptions of early proponents of teaming, enduring collegial and decision making relationships do not just happen given conditions of shared students, space, schedule, and planning time (Epstein & Maciuer, 1990). Evidence of the presence of various conditions and experiences during the growth of exemplary teams may indicate ways to help teams progress through early stages of teaming so that they can turn their attention to better serving students. Those responsible for distribution of various school resources might consider the results of this report in light of preparing fertile ground in which teams can grow.
Assumptions

The main assumptions of this study are inferred from educational research. The first assumption in this study is that the most effective teams are active on all four domains of Erb and Doda's (1989) model and that this activity requires a high degree of collaboration in areas of student/teacher/parent interaction, professional growth, and curriculum planning.

Although not part of this study, discussion of the rationale of the second assumption is included in the survey of the literature. This assumption is that a high degree of teacher collaboration is beneficial to students. Research results are mixed, but have shown links between increased teacher collaboration, increased student achievement, and improved discipline (Arhar, Johnston & Markle, 1989). Therefore, when teams are highly developed, the educational results are desirable.
TEACHER DEMOGRAPHICS

Experience in middle level school
Type of certification
Subjects taught by each teacher
Degrees held
Attitude toward teaming
Use of planning time
Knowledge of students/middle school issues

SCHOOL/STUDENT DEMOGRAPHICS/ORGANIZATION

Balance on Team
Size of school (students and faculty)
Size of team (students and faculty)
% of students of various ability levels on team
Grade levels on team
Grade levels in school
Team coordination with other staff
Departmental system
Strong team leader

DECISION MAKING STRUCTURE

Input into decision to go into teaming
Input into choice of team members
Input into content of staff development

ADMINISTRATIVE AND COMMUNITY SUPPORT

Team representation on advisory council
Administration encouragement of team activities
Scheduling responsibility given to team
Administrative goals for team
Parent and community introduction to teaming

Figure 2: Conditions to be explored as factors in the development of exemplary middle level school teams.
TRAINING

Duration of staff development program
Format of staff development program
Specific areas of training:
  Reasons for teaming
  Early adolescent characteristics
  Personality "type" theories
  Holding meetings
    Group decision making
    Team building
  Teaming practices
    Co-operative curriculum planning
    Discipline

TEAM ACTIVITIES

Setting goals
Evaluating team progress
Building team identity
Keeping records
Holding meetings
Diagnosing and prescribing for students
Designing and maintaining discipline
Planning for parent conferences
Sharing professional information
Scheduling
Coordination instruction

Figure 2: Conditions to be explored as factors in the development of exemplary middle level school teams (continued).
Limitations

The sample used in this study imposes significant limits on its generalizability. It is a small sample of teams developed to a certain level of sophistication with at least two years experience teaming, using a very specific definition of "interdisciplinary team". The sample only includes the experiences of a few teams with less experience, or of teams which do not include all of the variables--core subjects, block schedule, and two planning periods daily. Certainly, more research is needed on less expert teams, teams not filling all of the characteristics in the definition used in this study, teams with less experience, and those who have "dropped out" of teaming. In addition, more research is needed on the variations among exemplary teams.

In addition, generalization of the results to other schools or school divisions may not be valid. I will describe some of the factors present during the formation of these teams. Facilitating change in any school is a very difficult matter because of the complexity of the interrelationships between the many variables governing the school culture (Joyce, 1990). Educators once assumed that if a system worked in one district or school, they could transplant it effectively. Staff developers now see the need for more environmentally specific planning. It is possible that positive conditions affecting team development
in these schools might be negative conditions when interacting with such variables as demographics, school climate, finances, leadership, student age range, or social or educational norms, or legislation in other schools or systems (Epstein & MacIver, 1990). A study in areas with any of these different interactions might yield vastly different results.

Definitions

Collegiality: Collegiality is the degree to which members of a group are tied together for sharing of goals, information, and experience.

Collaboration: According to Little (1982), collaboration is "the extent to which teachers engage in help-related exchange about curriculum, students, classroom".

Middle Level School: For the purpose of this study, a middle level school is a school containing only grades six through eight.

Middle School: For the purpose of this study, a middle school is a middle level school which has begun to implement the concepts of the "middle school movement" as outlined by Alexander and George (1981).
Interdisciplinary Team (IT): An interdisciplinary team is a group of two to five teachers responsible for instructing a common group of students in the core subjects—mathematics, science, social studies, and language arts—during a four or five period block in the daily schedule, and who have two planning periods daily, one for team planning and the other for individual planning (Gatewood, Cline, Green & Harris, submitted for publication).

Exemplary Team: A model of team development proposed by Erb and Doda (1989) includes four domains: Domain 1-Team Organization; Domain 2-Attention to Students; Domain 3-Shared Responsibility and Growth; and, Domain 4-Coordination of Instruction. Each of these areas is characterized by specific team activities (see Figure 1). In this study, I determined teams' expertise on each domain using ratings given by a group of experts to a random sample of twenty percent of the respondent teams. Experts read a summary of the responses of teachers on these teams and determined their competence on each domain. The criteria established by these assignments was then used to determine the expertise of the remaining teams on each domain. Exemplary teams are those which are classified as expert on three domains and either expert or very close to expert on the fourth.
Overview of Subsequent Sections

The study includes existing and new research on interdisciplinary team organization in middle level schools. Chapter 2 contains an overview of the literature on interdisciplinary team organization including theory and current research on operating interdisciplinary teams. Chapter 3 includes a discussion of the means of gathering data, identifying exemplary teams and variations in their activities, identifying factors common in their development, and classifying those factors according to teachers' perceptions of their value in team progress. Chapter 4 includes a discussion of the number of teams surveyed which demonstrate expertise in each of the four categories in Erb and Dada's model. It also includes a discussion of the characteristics of teachers and students on teams which are classified as exemplary, and of experiences and environmental conditions common to those teams, and an analysis of teachers' perceptions of the importance of those factors. It also includes a discussion of data gathered in observation of team meetings which reveals variations in the activities of exemplary teams. Chapter 5 includes a summary of the data, factor analysis which leads to a model of team-specific and whole-school factors related to the development of exemplary teams. It also contains a discussion of the extent to which the data support current theory and of activities conspicuous by their absence in team practice.
Interdisciplinary Team Organization in Current Literature

Interdisciplinary team organization seems the perfect answer to the call of effective schools researchers for more personalized instruction in smaller social groups for early adolescents. Although it seems that this organizational method is accepted as an integral part of the middle school concept, less than half of intermediate level schools are teamed (Alexander & McEwin, 1990; Epstein & MacIver, 1990), and research on its value yields mixed results. Early loose definitions of interdisciplinary team organization, cultural norms, and restricted budgets led to a vast array of different forms labeled "interdisciplinary teaming" in American schools. Much of the research points out that teams seem to have a positive effect on staff development, teacher satisfaction, and on student achievement and behavior. Other research, however, disputes these findings. This confusion might be the result of differing definitions of what effective teams do and how they are formed, and of wide variations in teaming practice.

Three models currently form a basis for research on how teams actually work in schools. In the first, Plodzik and George (1989) outline a four-phase model of progress and conditions deemed by a large sample of principals to be necessary for evolution of effective teams. In the second,
Epstein and Maclver (1990) indicate the degree of commitment to teaming in a national sample, along with perceptions of the problems and rewards of teaming. Erb and Doda (1989), based on close observation of a large group of teams, propose a four-domain model, with many specific conditions which they believe foster the growth of effective teams.

Rationale for Interdisciplinary Team Organization

Interdisciplinary team organization seems to fulfill some of the requirements for school reforms being promoted by educational authors. Lists of the characteristics of effective schools (Hopkins, 1990) include collaboration among staff and smaller student groups as essentials of reformed schools. Boyer (1983) called for interrelated curriculum, increased collegiality, and common planning time for teachers. In a study of effective schools, Little and Bird (1984) found that collaboration among staff members was highly valued in those schools. In addition, in a comparison of teachers in schools organized by interdisciplinary teams and single subject departments, Doda (1984a) found the teachers in the teamed school to have higher expectations of the students, to be more student oriented and less curriculum oriented, to be more satisfied with their jobs, and to use a larger variety of teaching techniques than those in the school organized in departments. Studies of the psychological characteristics
of early adolescents supported the contentions of earlier theorists for smaller peer groups for these students. In her study of effective schools, Lipsitz (1984) found that early adolescents were best served by an environment with a small, knowable group of peers. Other psychologists, studying adults in the workplace, found that cooperation promoted achievement, positive personal relationships, better self-esteem, and greater social support than competitive or individualized organizations (Johnson & Johnson, 1987). After an extensive study of the American school system, Goodlad (1990) called for "schools-within-schools" to reduce the size of students' social groups, provide more flexibility, and allow teachers more professional autonomy. More recently, Lieberman and Miller promote a "two-pronged focus on a rich learning environment for students and on a professionally supportive work environment for adults" (1990, p. 761) and contend that restructuring the school environment requires increased collegiality and professional growth opportunities.

Many authors argue that interdisciplinary team organization is significant in assuring the small group for early adolescent students and collegiality for teachers and is an important factor in the formation of effective middle schools. Research shows the importance of more frequent contact between students and teachers and small groups of students for safe, constructive environments (Cohen, 1981).
Schmidt (1979) states, "Although there is no single and flawless model for a middle school, teaching in teams seems to hold the greatest promise as a way of organizing so as to meet the unique needs of transceivers within the middle school setting." (p. 18) Alexander and George have no reservations about the importance of interdisciplinary team organization in The Exemplary Middle School (1981). They state, "The interdisciplinary organization of teachers is both the most distinguishing feature of the middle school, and the keystone of its structure." (p. 113) George contended later, "The interdisciplinary team organization is the only acceptable method of grouping teachers and students on a schoolwide basis in middle and junior high schools." (1984, p. 57)

Effective schools research argues for changing the culture of schools (Joyce, 1990). Interdisciplinary team organization is one method for changing that culture. Erb (1987) interviewed 200 teaming teachers to investigate how the culture of schools was changed by teaming. The results of this study showed changes in four systems: the authority system, the decision-making system, the reward system, and the communications system. In the authority system, he found that teachers made more decisions concerning retention and whole-school issues. In the decision-making system, he found that issues were brought before the full faculty only after they had been thoroughly discussed in team meetings.
He found that the teachers felt that support of colleagues and membership in a group became a major factor in the reward system. Finally, he found significant changes in communications among teachers about students, curriculum, and management; between teachers and parents and other faculty members. Taken together, these changes are significant changes in educational culture.

Implementation of Interdisciplinary Team Organization

**Varying Reports of Implementation**

Reports of the amount of implementation of this organizational form vary widely. Appreciation of interdisciplinary team organization is increasing. In 1969, Alexander, Williams, Compton, Hines, Prescott and Kealy considered it as one of the options for middle school organization. By 1981, Alexander and George contended that it was the only acceptable organizational form for an effective middle school. Having surveyed principals, Alexander (1987) declared that interdisciplinary team organization was a critical factor in middle school development. Dada, George, and McEwin (1987) stated that, "Most schools in the middle rely on the interdisciplinary team organization as the fundamental way to eradicate teacher isolation and foster interdependence." (p. 4) and George (1984) contended that most administrators found teaming a valuable, perhaps preferred, method of
organization. In a study of effective schools, George and Oldaker (1985) found that 90% of their sample schools used interdisciplinary team organization. However, Lounsbury and Johnston (1988) found that only 67% of sixth grades in their sample were organized in interdisciplinary teams. In a nationwide survey of the progress of middle level schools from 1966 to 1986, Alexander and McEwin (1990) found that there had been a considerable increase in this form of organization with the four subject (science, mathematics, language arts, social studies) team dominating. However, they also found that flexible scheduling within team blocks, a required factor in teaming by theorists, was used in only 20-31% of schools sampled, depending on grade levels. In another national survey of middle level school practices, Maciver and Epstein (1990) found that 42% of early adolescents would experience team organization at some time between grades five and nine. However, they also found only 32% of principals committed to the teaming concept, with only 10% committed to joint daily planning time considered an absolute requirement in the definition of teaming by most theorists.

Varying Definitions of Interdisciplinary Team Organization

Much of the difference in the results of these studies can be found in the variation in definition of what interdisciplinary teams are and what they actually do. The
basic definition of the interdisciplinary team is that it is a group of teachers who:

1. are responsible for planning, teaching, and evaluating the curriculum in two or more areas,
2. share the same students,
3. share the same schedule, and
4. share the same area of the building. (Alexander & George, 1981).

According to Alexander and George (1981) these teams decide who teaches what, and to whom; select and distribute texts and materials; relate to parents and other staff members as a group; and may team teach. Included in the definition used by Erb and Doda (1989) is the requirement for daily team planning time. Maciver and Epstein's (1990) definition of interdisciplinary team organization includes only some planning time weekly shared by the team. It is obvious from research (Alexander & McEwin, 1989) that many school administrators do not find the flexible block schedule a necessary part of interdisciplinary teaming, but the four-subject team is the most common.

For the purpose of the research in this study, I used the definition of teaming proposed by Gatewood, Cline, Green and Harris (In press) which includes a group of two to five teachers responsible for the instruction of the core subjects--mathematics, science, social studies, and language arts--to a common group of students. These teachers share
these students during a block of at least four periods during the school day, and have two planning periods daily—one for individual preparation and one for group planning.

**Problems in Implementation**

In addition to variations in definition, other factors affect the implementation of interdisciplinary team organization and what teams actually accomplish. Fullan (1990) cautions that pre-existing conditions in the school culture can influence the adoption of any change. "Teaming creates an opportunity for things to be done differently in the school; it does not assure that they will." (Arhar, Johnston & Markle, 1989, p. 24) Although Lipsitz (1984) found that this form of organization was common in exemplary schools, she also found that the collaboration implied was often only used in the simplest tasks such as scheduling. Cohen (1981) found that most collaboration was on scheduling and coordination, with little collaboration on actual instruction or curriculum planning. In contrast, Bredo (1975) found that on working teams more complex tasks resulted in higher interdependence.

Time, personality, and skills affect team member interaction. Johnson and Johnson (1987) in their work on group processing, found that positive results were found only when group members had specific skills in leadership, decision making, communication, trust building, and conflict management. In addition, they stress the need for group
members to perceive themselves as interdependent. If participants perceive joint action to have more benefits than liabilities, they are likely to maintain it (Little & Bird, 1984). However, teachers will not be willing to spend the requisite time for team planning if they perceive it as an additional burden (George & Oldaker, 1985). Blomquist (1986) found this to be true in a study of teachers who found insufficient time to discuss curriculum, and limited their team agenda to discussion of students. Although teaming reduces isolation, Clark and Clark (1987) found that some teachers, especially content experts, do not appreciate collegial relationships. In their survey of perceived benefits and drawbacks of teaming, Epstein and Maclver (1988) included poor personality mix, lack of time, inflexible school schedule, and insufficient teacher training as obstacles to formation of strong teams.

Change to an interdisciplinary team organization cannot be made without significant other changes in school norms and practices. Alexander and George (1981) note that it is extremely important for planners to recognize the synergism between the various systems and practices in a school when making any change. Sizer (1991) notes that there is significant pain involved in a change to teaming. Faculty are required to rethink the importance of the various content areas, school activities, and roles. He contends that many faculty members are not willing to face the pain
of relinquishing old norms for what they perceive as the uncertain possibility of gain from a radically different approach to their practice.

The Relationship Between Teaming and Teachers' Work Environment

No element of organization or practice in any institution stands alone. The surrounding factors in which a system exists are important to its functioning and to its success or failure. Moos (1987a) points out that all structures are imbedded in a system concerned with general context (public or private institutions), physical features, organizational structure and policy, and persons in the setting. Before any change can take place, an environmental analysis should be done because the system relates to that in which it is embedded (Tessmer, 1989). The system in which teaming is embedded is the school climate. A primary problem with the study of school climate is suggested by Strange and Jones. "Regardless of the lack of definition precision, there is agreement on the importance of climate in determining the success or failure of a school." (1991, p. 41) It is largely acknowledged that "excellence and productivity are determined in a large part by the climate that exists within the school." (Rojewski, Wendel, McInerny, Currin & Smith, 1990, p. 202). Edmonds states, "The nature of the school in which the teachers work clearly emerges as among the most powerful predictors of teacher
The phenomenon of climate or environment is given an important part in the study of educational change. Yet in a survey of teachers Winter (1987) reported that this climate, largely defined by the respondents to include principal support and staff cohesiveness, has shown a negative shift since the 1980's, which might impact on any new program, including the introduction of interdisciplinary team organization.

As noted, some theorists believe that the importance of climate is primary even without concise definition. This is an important expedient, since the definitions of school climate or school environment are many and varied. Edmonds defines climate as "is it clean, is it safe, is it orderly, is it a fairly serious place given what those adults and children are doing there?" (1980, p. 5) Montoya and Brown define school climate as "norms, beliefs, and attitudes reflected in the conditions, events, and practices of a particular environment." (1980, p.1) Lounsbury (1986) indicates that climate should reflect warmth, caring, and respect, in a setting modelled by the principal and reflected by the faculty. However, he notes in a later study with Clark (1990) that schools often are impersonal and students, as a result, are apathetic. Licata states, "Effective school climate is positive attitude on the part of the entire staff and student body exhibited through the overt behavior that creates an orderly learning
environment." (1987, p. 3) Frymier asserts, "School climate is characterized by the level of ethical commitment of staff toward students, by the kind of relationships that exist among all of the persons in the school, and by the approach to problem-solving that is evident among the professionals in the school." (1987, p. 5) Strange and Jones (1991, May) note that a positive school climate includes comfortable, pleasant environments, order, and high expectations. Other definitions stress that climate is part of normative conditions which endure over time, the overall feeling and impressions of the school. Bossert, Dwyer, Rowan and Lee (1982) note that it is important to remember that organizations with the same structure can have radically different climates.

With this lack of agreement on definition, it is not surprising that there is confusion over the relationship of school climate to academic achievement. Although Edmonds (1984) felt that a positive school climate was one of the key points in the effective schools programs he directed, Montoya and Brown (1980) determined little if any relationship between school climate and academic achievement among samples with matched ethnic and economic factors. On the other hand, Ashton and Webb (1986) indicated that research showed a strong positive relationship between learning and some parts of school climate.

Actually, school climate for teachers has two important
parts—the relationships and conditions in their individual classrooms, and the adult work environment in the school. Moos (1987b) has created a set of scales for different environments, among which are classroom and work environments. He contends that research shows a link between scores on the Classroom Environment Scale (CES) (Trickett & Moos, 1974) completed by students and the Work Environment Scale (Moos & Insel, 1974) completed by teachers (Moos, 1987b). He notes that "teachers who lack support from co-workers or administrators experience ambiguous job and role expectations may find it hard to establish a supportive, clear learning environment." (1987a, p. 239)

Moos (1981) considers a positive work environment to include good morale, considerate supervisors, clear goals, participatory decision-making, good organization, flexibility, cohesiveness, and independence. He notes that strain from work environment is caused by high job demands, supervisor control, lack of participation in decisions, and lack of role clarity. All of these environmental factors are things which may determine, to an extent, the success or failure of teams. Fisher and Fraser (1983) note that there is substantial difference between schools in the Work Environment Scale, so it seems that one possible impediment to consistent practice of teaming might be these variations in teachers' work environment.
Benefits of Interdisciplinary Team Organization

Research supports the assumption of this study that benefits to individual teachers, to staff growth, and to student achievement occur as the result of establishing interdisciplinary team organization. Erb and Dada (1989) assert, "Communication patterns within a school change, teachers' involvement in decision making improves, instruction better serves the needs of students, the curriculum is transformed, and teachers find the practice of their profession more rewarding." (p.8)

Benefits to Individual Teachers

Individual teachers are the first beneficiaries of increased collegiality, reporting more job satisfaction and social support, and less stress. George (1982) claimed that collegiality increased faculty morale and productivity. Erb and Dada (1989) pointed out the benefits of increased collegiality, sense of power to influence their surroundings and students, and autonomy among teaming teachers. In early research on teaming, Bryan and Erickson (1970) found that teachers in schools with interdisciplinary teams had better attitudes toward students and were more satisfied with their jobs than teachers in departmentalized schools. Dada's (1984a) research found teamed teachers with increased job satisfaction, a wider variety of teaching methods, and better attitudes toward students. Blomquist (1986) also found increased job satisfaction for teaming teachers.
Ashton and Webb (1986) found that sharing gave team members emotional and professional support. In a review of the literature on teaming, Johnston, Markle, and Arhar (1988) found that isolation resulting from social norms in some schools prohibited sharing and the consequence was loneliness and dissatisfaction, but that "potential affective outcomes of collaboration for teachers include more positive interpersonal relationships, greater social support, higher self-esteem and a greater sense of efficacy." (p. 31) The psychological rewards of collaboration include support, input into decision making, and courage to try a richer variety of classroom techniques (Erb, 1987). In an interview with Brandt (1987), psychologist David Johnson said, "The ability to cope is determined not by the amount of stress a person is under but by the balance between stress and support." (p.17) The effects of teachers' mutual support is seen in recent research (Gatewood, Cline, Green & Harris, submitted for publication). Teachers in teaming situations with ample planning time, registered less stress and stress-related symptoms than non-teamed teachers. In a review of the literature on the effects of teaming, Arhar, Johnston & Markle stated, "It is clear that team arrangements reduce teacher isolation, increase satisfaction and improve individual teachers' sense of efficacy." (1988, p. 25)
Benefits to Staff Development

In addition to benefits to individual teachers, the collegiality promoted by interdisciplinary teams has positive effects on staff development, resulting in more knowledgeable teachers and improved programs. Shanker argues, "Collegial interaction among teachers that allows them to discuss, observe, analyze, and study problems together is necessary if teachers are to be able to generate the kind of practitioner-based knowledge needed for improvement of practice." (1990, p.98) Research shows that an important condition in effective schools is a climate that allows teachers to share ideas among themselves (Tye & Tye, 1984). In addition, they will benefit from the sort of feedback that is necessary to improve teaching skills (Johnston, Markle & Arhar, 1988). However, Rosenholtz (1985) found that most school do not provide for teacher learning--collegial or otherwise. "An individual who is withdrawn is exposed to much less stimuli than people who are not,...which tends to reduce disposition toward risk taking and probably results in a relatively low level of growth." (Joyce & McKibbin, 1982, p. 39) In addition, Fullan (1990) writes that change in school culture must come from teachers working together on important goals, rather than on activities that simply take more time.

Interdisciplinary team organization promotes continuous teacher learning (staff development) which results in
improved programs. By working together on important projects, teachers will benefit from the sort of teacher learning and professional development that the Holmes Group (1986) felt were vital to improved student learning. Teaming brings to staff development the power of combined teacher perspectives, the disposition to learn from each other, the superiority of group problem-solving, more thorough evaluation of curriculum, and an organization which can support other middle school programs (Alexander & George, 1981). Dada (1981) advises teachers to seek out others from whom they can gain inspiration. Collaboration means professional growth. According to George, "Teaming teachers learn from experience that collaboration pays big dividends; new ideas for old problems will become more common." (1984, p. 63) Continuous professional interaction with other team members has the potential to be the most effective staff development tool available to middle school educators.

**Benefits to Students**

In addition to benefitting individual teachers and staff development programs, interdisciplinary team organization may have positive effects on student outcomes. Although this situation is a part of the assumptions of this study, and not a part of the research, a discussion of the literature is presented as justification for the assumption. "Teams of teachers working with small groups of students can
reduce isolation, anonymity, and alienation from the institution and, evidently, not only increase teacher satisfaction, but be a significant factor in success with high-risk populations as well."  (Arhar, Johnston & Markle, 1988) Alexander and George contend,

The goal of the middle school is to contribute to the articulation between the elementary school and the high school by providing a program that ties the two together in a smooth and continuous way, while at the same time providing a unique experience for the education of older children and early adolescents: a middle way between the elementary school self-contained classroom and the high school department. (1981, p.114)

Dada (1984a) found that teachers in the teamed school had higher expectations and provided more support for students than the teachers in the departmentalized school.

In a review of the literature, Arhar, Johnston and Markle (1989) found a trend toward positive achievement results with teaming, including a study by George and Oldaker (1985) in which 62% of teaming schools reported achievement gains, and a study by Bradley (1988) in which teaming was associated with positive mathematics achievement.

The clearest results of interdisciplinary teaming for students seem to be in affective areas. George (1984) emphasized the need of early adolescents for an understanding of their individual uniqueness along with a sense of community group involvement. He noted that behavioral improvements resulted from the enforcement of
team norms, increased efficiency of managerial tasks, increased parent-school communications, and the sense of belonging to a community fostered by interdisciplinary team organization. Alexander and George (1981) hypothesized that positive effects resulted from teachers modeling good group behavior. In a study of effective schools, George and Oldaker (1985) found that teaming led to improved discipline and more productive peer relationships. Arhar, Johnston & Markle (1989) that studies imply that attitude and climate in teaming schools were positive, citing supportive atmosphere. Metz (1986) found improved interracial relations as a result of teaming in some schools. Even with inconclusive evidence on achievement gains as a result of teaming, positive affective results form a good basis to argue in favor of teaming.

Three Models of Team Growth

Early proponents of teaming advised administrators to put teachers together and assign shared responsibilities for students, schedule, and area of the building, and wait for a working team to emerge. More recently, educators have realized that teams progress along a sort of continuum. In this study, I will discuss three models of team development. Two of them (Plodzik & George, 1989; and Erb & Doda, 1989) are models of team progression along a continuum. (An additional model by Pickler, 1987, combines the factors of
these models in a checklist of teacher behaviors at five
levels.) The third model (Epstein & Maclver, 1990) is based
on an index of commitment of a school to the concept of
teaming. Although different, these models are not
necessarily mutually exclusive. Research supports
significant aspects of all of these models.

**Plodzik and George's Four Phase Model**

Plodzik and George state, "The key element of the
middle school is held by many to be the interdisciplinary
team: a group of teachers who together represent more than
one subject area and who share the same students, the same
space and the same schedule." (1989, p. 15) George (1982,
May) proposed a four-phase model of team progression toward
becoming a cohesive unit for this group. In his model, each
level must be achieved before the team can progress to the
next level. The first level is the Organizational Phase in
which teams begin to deal with physical conditions, student
scheduling, student management, and parent communications.
In this phase there is less movement through the school and
he feels that it "satisfies and strengthens student and
teacher members." (Plodzik & George, 1989, p.15) Stage Two
of George's model is the Community Stage in which the team
develops symbols of membership, team contests, and team
outing. This stage is an important opportunity for
students and teachers to identify themselves as members of a
small group (Plodzik & George, 1989). Instruction is the
next stage in George's model which is marked by teacher collaboration concerning curriculum, methods of grouping students for instruction, interdisciplinary units, and team teaching. Governance is the title of George's fourth stage. (George, 1982). In this stage, teams share decision making with administrators (Plodzik & George, 1989).

Time is required for teams to progress along George's hierarchy, but research shows that many teams reach the top rapidly. In a survey of 159 middle schools representing 51% of the middle schools in the northeastern states, Plodzik and George asked principals questions about the demographics of their schools and 28 behaviors—seven that were considered by experts to be exemplary of each stage. This research resulted in a description of elements surrounding the growth of some teams according to principals. Plodzik and George reported that 5% of the respondent teams were at Stage One; 17% at Stage Two; 21% at Stage Three; and 40% at Stage 4. Sixteen had not reached Stage One. Seventy percent of the schools surveyed had interdisciplinary team organization in the seventh grade. Teams had a median of four teachers and a mean of 104 students. Fifty percent of the principals for respondent teams had graduate education in middle school issues, while 80% of the principals had participated in middle school workshops. Sixty-five percent of the schools with teams had had in-service workshops on middle school topics in which 99% of the teachers had
participated. Finally, 91% of the principals polled said that the teachers in their schools had an average of four common planning periods per week. This presents a clear picture of progression along a hierarchy along with ample in-service on and administration understanding of middle school topics and time for common planning.

Additional research by George (George & Stevenson, 1988) reported the activities of exemplary teams in exemplary schools. This research supports the characteristics of teams of Level 4 of the model, demonstrating strong organization and sense of community, instructional collaboration, and participation in school government. George and Stevenson surveyed principals who were at schools deemed by experts to be exemplary schools. The principals reported the characteristics of those teams which they considered to be the best teams at their schools. Characteristics reported included teacher traits, team organization, and team accomplishments. They discovered a wide range of team sizes and types of assignments, with planning time varying from daily to weekly. Forty-six percent of the teams had daily team planning time with team meetings characterized as task-centered and efficient, with use of both agenda and minutes. Principals felt that teams' dealings with students were marked by unity. They identified activities of these exemplary teams as setting reasonable goals for students and offering support and
recognition, establishing discipline policies and strong team identity, and actively communicating with parents. The principals surveyed felt that teachers' commitment to teaming, and team leaders who were liked and respected, and who gave attention to detail were characteristic of the best teams. In addition they praised the way the teams worked with students in an advocacy role. About 80% of the teams were primarily or entirely elementary certified teachers, although about 70% of them taught only one or two subjects. Most of these teams presented interdisciplinary units. Principals also reported that they actively solicited advice from the teachers on the teams.

**Epstein and MacIver's Commitment Model**

Epstein and MacIver, in a national survey of middle level school practices used a slightly different model in which teaming was defined as an organization in which "two or more teachers of different subjects share the same group of students and/or coordinate their instructional programs across subjects" (Epstein & MacIver, 1988, p. 9). They judged teams by their commitment which was determined by the following scale:

3=Teams present in seventh or eighth grade with two or more hours of common planning time per week during which teachers devote most of their time to team planning
2=Teams in the seventh or eighth grades with two or more hours of common planning time per week, during which teachers devote little of their efforts to team planning

1=Teams in the seventh or eighth grades but with no common planning time

0=No teams in seventh or eighth grades (Maciver & Epstein, 1990).

According to this research, 42% of early adolescents will be on a team at some point between grades five and eight. Interdisciplinary teams usually have four teachers representing social studies, English, mathematics, and science, and about 100-125 students. Possible, but not substantiated, benefits of teaming included improved student attitudes, quick solutions to problems, social support and understanding for teachers and students, and more effective instruction due to integration (Epstein & Maciver, 1988). The research did show that teaming was accompanied by a perceived increase in the strength of the overall middle school program (Epstein & Maciver, 1990). The authors caution, however, that in schools in which actual or perceived obstacles (such as personality conflicts or lack of teacher training) were high, teaming could actually lead to a weaker overall program (Maciver & Epstein, 1990), thus stressing the importance of teachers' and administrators' attitudes to the success of teaming.
Erb and Doda's Four Domain Model

The third model of team progression, proposed by Erb and Doda (1989), is a model of teaming based on their close observation of a large number of teams. Under their definition, an interdisciplinary team is a small community of teachers and learners. It includes two to five teachers who share common planning time daily, common students, adjacent space and/or classrooms, and a flexible block schedule for students. Although they outline four domains of team development, their domains are slightly different than those outlined by George. In addition, they acknowledge that teams may become expert on one domain and turn their attention to other domains, showing less activity on those domains already mastered. The domains of Erb and Doda's (1989) model include:

Domain 1: In which members settle issues related to meetings and management,

Domain 2: In which members begin to address student concerns,

Domain 3: In which members develop a collective sense of responsibility and begin to promote each others' professional and personal growth, and
Domain 4: in which members begin to coordinate curriculum and integrate instruction. (This would include diagnosis and evaluation of student performance, the regrouping of students, coordination of assignments, planning for instructional overlap, cooperative changes in instructional methods or sequence for mutual benefit, and interdisciplinary units.)

(See Figure 1 for specific activities at each domain.)

Accompanying their model is a supply of checklists and forms which have been used by successful teams to facilitate progress. They outline specific methods of decision-making responsibilities for team leaders and other team members. They include a description of four possible team roles—facilitator, communicator, recorder, and esteem builder. These or other team-defined roles they felt should be filled on a rotating basis by team members. They also include specific ideas about expected team member behavior at meetings. They caution that the main goal of team members is to "maintain a spirit of trust, collaboration, and confidentiality with each other" and to aid in achieving team goals (Erb & Doda, 1989, p.21).
Factors Involved in the Progress of Interdisciplinary Teams

Each of the models cited above, plus early theoretical work on interdisciplinary teaming by Alexander and George (1981), and recent research on staff development proposes a number of factors considered to be necessary for the efficient progress of a team. Many of the conditions cited as favorable to team progress are mentioned by more than one of these sources, while others are peculiar to only one model. Some of these elements have been confirmed by research to be common to exemplary teams, while others have yet to be investigated on large samples. Erb and Doda's model (1989), particularly, is very complete in outlining how and why teams progress, but has not been tested on a large sample. For a summary of these models, see Figure 3.
### Factors Affecting Team Development

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<th>Factors Affecting Team Development</th>
<th>Authors in Current Literature</th>
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<td>Erb &amp; Alexander</td>
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#### Teacher Characteristics
- Experience: X
- Certification: X
- Education: X
- Attitude: X
- Use of time: X
- Knowledge of students: X

#### Decision Sharing

#### Administrative Support
- Encouragement/ Priority: X
- Goal setting: X
- Community Relations: X

#### Organization
- Balance on teams: X
- Coordination w/other staff: X
- Departmental structure: X
- Strong team leader: X

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**Figure 3:** Factors considered important to team progress in current literature.
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<th>Factors Affecting Team Development</th>
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<th>Schedule/Format of Staff Development</th>
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<th>Content of Staff Development</th>
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<tr>
<td>Reasons for teams</td>
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<td>Student characteristics</td>
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<td>Holding meetings/communications</td>
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| Team practices (planning, conferencing, etc.) | X |

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<th>Team Activities</th>
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<td>Setting goals</td>
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<td>Evaluating team</td>
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<td>Building team</td>
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<td>Maintain agenda/schedule/records</td>
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Figure 3: Factors considered important to team progress in current literature (continued).
Staff Development Considerations

General agreement seems to exist among staff development experts as to the need for increased teacher collegiality to bring about effective educational change. Although it seems ideal for this sort of development and "increases the likelihood that they [teachers] will engage in co-operative endeavors", teaming is necessary but not sufficient to insure collegial interactions (Arhar, Johnston & Markle, 1988, p.25). According to Joyce (1990), we have not yet learned how to sufficiently nurture the rise of collegial groups or to institutionalize them. Some early theorists have argued that just putting a group of teachers together would bring about collegiality. Goodlad (1990) states, "But moving from the isolation of the classroom to public discussion and activities that focus on student learning does not come naturally; it requires a great deal of organizational and individual learning." (p.191) Further, he argues, "Programs for the education of educators must be characterized by a socialization process through which candidates transcend their self-oriented student preoccupations to become more other-oriented in identifying with a culture of teaching." (p. 191) Research, however, shows that in a survey of ninety-two teacher education institutions, in only one did the students develop a strong peer group (Su, 1990).
If this kind of collegiality is not evident in teacher training institutions, how is it to be developed? Shanker (1990) stresses that people do not change without significant help. "For example, teachers who begin to function in decision-making teams need to develop their interactional skills and their decision-making skills" (p. 102) and they need access to necessary information. Joyce, B. Murphy, Showers and J. Murphy (1989) and Bennett (1987) determined that teachers do not accept new systems until they have been trained to some level of skill in them. Clark and Clark write, "Teaming is a social enterprise. Successful teams are built around teachers who are skilled in human relations, planning, and decision-making. When these skills are not present, the effectiveness of the team may be severely damaged." (1987, p.3)

The implication of all of these writers is that a significant amount of staff development in the areas of interpersonal skills and cooperative skills is necessary for effective teaming to evolve. In addition, Mell and Mell (1990) outline several preconditions they believe are necessary before any successful change in school organization, including the introduction of interdisciplinary team organization, can occur. They include: a history of successful innovations, emphasis on the single most important change, monetary support from the district, teachers who need challenge or who need specific
help with a group of students, inclusion of both informal and formal power structure in all decisions, teacher representatives who are successful at the new practice, adequate resources, parental understanding and support, and personal and professional gain for teachers who support the innovation. More recently, Pajak (1992) proposes that district personnel go a step beyond monetary support for curricular change, and actually participate with teachers as curriculum planners. All of these staff development considerations apply to the introduction of interdisciplinary team organization to school culture.

Alexander and George's Theoretical Requirements for Development of Interdisciplinary Teams

Early in The Exemplary Middle School, Alexander and George (1981) state, "When provided with some tutoring in conducting team meetings and in the process of scheduling their students, most teams will function quite smoothly, provided the interpersonal mix is right and the communication skills are what they should be." (p. 139) In the same volume, however, they seem to take a more careful look at what is required to make a successful team:

Given balance, time, place and autonomy most teams move forward. Without the proper skills and attitudes, however, forward movement will be minimal. The interdisciplinary team organization requires skills that are slightly different and considerably more sophisticated than those required by nonteaching teachers: planning skills and communication skills. (p. 138)
They go on to note that effective staff development is the key to implementation. This program includes clarification of reasons for teaming, commitment of the central administration, an effective coordinator and coordinating committee, and early identification of key participants. They stress the importance of training the principal so that the principal can, in turn, train teachers in communication, planning and managing programs, scheduling, conferencing, budgeting, curriculum planning and instructional leadership. They propose choosing a few key people for extensive training, training which continues throughout the early stages of team growth on a multi-year staff development plan, careful selection of experienced consultants, and using a high degree of experienced local talent.

Characteristics of the team that Alexander and George (1981) deem necessary for successful teaming include a balance that represents the total school population, adjacent rooms, time together for planning, a degree of teacher autonomy, and participatory decision-making, and a strong team leader with a well-defined role as a facilitator of team activities and development.

Results of Plodzik and George's Research on Factors in Interdisciplinary Team Development

In the research cited above confirming George's four stage model of team development, Plodzik and George (1989) polled a large sample of middle school principals about
their opinions of what led to successful team evolution. George and Anderson (1990) and Plodzik and George (1989) reported that, in the opinion of the principals polled in their survey, members of the best teams were willing to take risks, were flexible, and volunteered to serve on teams. In addition, successful teams had common planning time and teaching time and used it well, had clear, realistic goals, kept accurate minutes, generated positive ideas by brainstorming, and had open, warm relationships, and knowledge of their students. In addition, they stressed the importance of careful administrative strategies in the formation of teams, in maintaining accountability for team tasks, in in-service programs, and in guided practice by the principal in grouping for instruction and interrelating curriculum. They note that there is a statistical difference in the life stages of the teams if the principal has had graduate work or in-service training in middle school concepts. They see the principal's role as crucial to the success of the organization. They clearly propose adequate staff development programs: "Training teachers and administrators in knowledge, attitudes, and skills that will make this arrangement more efficient and effective may turn out to be a wise investment of staff development dollars." (George & Anderson, 1990, p. 94) Not related to the development of teams were the following: certification (elementary or secondary), the amount of instructional
planning time, participation of the principal in teacher in-service programs, the use of administrative teams, and discretionary spending by the teams (Plodzik & George, 1989).

George found similar results with Stevenson (1988) in a survey in which principals of exemplary schools reported how they nurtured their best teams. Principals reported winning teacher commitment in the planning stages through insuring teacher understanding of interdisciplinary team organization. They emphasized teacher control of their own professional work, administrative respect for their autonomy, and in-service programs aimed at teacher concerns. They reported their own role as one of protecting teachers from institutional obstacles, especially paperwork, of modeling cooperative behavior and of supporting innovation and supporting a clear school mission. They suggested choosing team members for certain characteristics, including optimism, enjoyment of teaching, maturity, expertise, care for children, and willingness to put the team's welfare before individual differences.

Results of Epstein and MacIver's Research on Factors Affecting Teams

In Epstein and MacIver's study (1990), findings on effective teams are mixed. Instead of progress along a continuum, this study measured commitment to teaming as defined above. Strongest commitment was found in schools
whose students were in low ability groups or were from professional and managerial families. MacIver and Epstein (1990) stressed the importance of a formal team leader, although many of the teams surveyed had reported having no formal leader, and also noted that teams whose members had chosen their own team mates seemed to do more work on curriculum planning. Departmental organization and team organization were both strong in many schools (MacIver & Epstein, 1990). They also stressed participation of school personnel in the decision to begin teaming, noting that organization mandated by outside authorities can actually weaken the total school program. Respondents to their survey stressed the importance of good personal relations in the school before teaming, a positive attitude toward teaming, and sufficient training for effective team growth.

Erb and Dada's Proposals for Development of Effective Teams

Erb and Dada's four-domain model (1989), as noted above, is based on their close observation of a number of teams throughout their development. In this model, they list step-by-step requirements for conditions, training, and activities to facilitate effective team growth in each domain. Dada (1981) stated that effective team building required fostering total team spirit through activities; building constant communication between and among teachers, students, parents, and administrators; using a unified team approach to discipline; and, when possible, using some
interdisciplinary team instruction. Doda (1984b) further suggests having specific activities such as team parties, trips, games, selecting team names and colors, and creating team rituals as team-building techniques. Requirements in the complete 1989 model include elements of pre-teaming organization, teacher team-building, student team-building, and a list of cautions which are discussed below.

Included in pre-teaming organization steps deemed necessary for effective team growth are staffing and in-service considerations, and the introduction of expectations for team growth. The authors advise administrators to consider certification, balance, and how integrated arts, physical education, other specialty teachers, guidance counselors, and other school staff will relate to the teams. They also advise planners to consider what subjects and grade levels teachers would like to teach, persons with whom teachers would like to team, and persons with whom teachers would not like to team, teacher classifications on the various personality or leadership "type" indicators, and the roles that team members will have. In addition, they propose a six-stage model of staff development which includes information on reasons for and methods of teaming, attention to personal concerns of teachers, management questions, and consequences of teaming, training in dealing with collaboration, and general refocusing on school priorities to include teaming at the top. Skills to be
developed in staff development include such problem-solving skills as brainstorming and reaching consensus, team trust building and maintenance, interpersonal and communications skills, and intrapersonal skills such as stress management. Staff development programs, according to this model, should begin at least a year before the start of actual teaming.

Erb and Doda (1989) also outline specific steps and requirements for team members in order to facilitate orderly growth of teaming. "Developing an awareness of team-mates' strengths and styles helps to overcome potential sources of conflict by promoting an appreciation of how divergent viewpoints can make the work of the team more effective." (p. 48) Along this line, they propose the use of one of the formal personality measures, and include in their book a short, informal personality measure. In addition, they caution teams to take ample time to clarify (in writing, if necessary) expectations for meeting behavior, set team priorities, establish agendas, make clear division of labor, develop a paradigm, or learn one of the many popular systems of problem solving, keep accurate and complete records, and continuously consider the importance of interpersonal relationships. According to Erb and Doda (1989), frequent internal team evaluation, inclusion of all members in decision-making, team-building activities, written goals, and application of consistent team-wide rules for students are all necessary for team growth. Team unity is fostered
by ample team activities, unified team/parent/student conference planning, team recognition activities, and constant diagnosis and prescription to meet student needs. Only when the team is firmly established, do they suggest planning an interdisciplinary thematic unit. The book includes an explanation of seven steps-some with the group and some done individually-necessary to plan an effective interdisciplinary unit.

In addition to these numerous requirements, Erb and Doda (1989) stress the importance of several other factors in the formation of effective teams. They insist that teaming must become the top priority of the school, and that adequate (daily) planning time must be available. Teams must be integrated with the rest of the school program and other staff members. A strong departmental organization is still required to coordinate across subjects, as well as a system for adequate coordination across grade levels.

In a book review in Middle School Journal (1991), Spencer praises this model as a guide for persons involved in teaming. Although extensive and thorough, elements of this model have not been tested to see if they are common to effective teams across a large population and perceived as valuable by teaming teachers. If they can be shown to be so, the model, complete with check lists, can become the guide Spencer thinks it should be for educators involved in interdisciplinary team organization.
Summary

Survey of the literature supports the assumption of this study that teacher collaboration and small groups of students are important in development of effective middle schools. The interdisciplinary team organization is one solution widely acknowledged as necessary to nurture this climate and create effective middle schools. However, to benefit teachers and students, these teams must be effective. The literature on how effective teams develop is less conclusive. The wide variety of systems accepted as interdisciplinary team organizations, varying models of team development, and numerous suggestions for what makes teams work well cause inconsistencies in research results. These, in turn, cause confusion in implementation of the concept. Erb and Doda's very complete model of staff development for effective team growth has not yet been tested on a sample of teams to determine which elements teachers on those teams perceive as important to the development of their effective teams. Surveys of factors believed to be important in team development have been of principals, while teachers' perceptions have not been probed.

A survey of a sample of teachers can be used to clarify Erb and Doda's model of the development process. Data could also clarify the relationship between this model and each of the other two main models from the perspective of teachers on highly effective teams.
CHAPTER 3

Research Design

The purpose of this study is to identify common elements in the experience of exemplary interdisciplinary teams, to assess their value in team progress as perceived by teachers, to determine to what degree the results support current theory, and to identify variations among exemplary teams. In this study, an interdisciplinary team is a group of two to five teachers responsible for instructing a common group of students in the core subjects during a four to five period block of time daily, and having a daily period for team planning in addition to individual planning time. Experiences in the development of the teams that I explored include demographic conditions, the decision making system administrative and community support, teacher training and characteristics, team activities and organization, and the whole-school work environment. In addition, I observed the activities of numerous teams, and identified variations not identified by the survey information.

Based on census information provided by the State Board of Education (Virginia Department of Education, 1991; Commonwealth of Virginia, 1990), I surveyed a sample of Virginia middle level school teams. (For the surveys and principals’ cover letter, see Appendices A, B, and C.) I analyzed the data from these surveys in six basic steps (see
Figure 4). The first step was to select a random sample of teams in schools serving grades six through eight and to telephone the principals to determine if teams with 50% of their original members and at least two years experience existed in their schools. The second step was to survey and observe team members. Next, I used data from those teams to determine on which domains of Erb and Doda's model each was active. I identified teams as exemplary which were expert on at least three domains and active on the fourth. The focus of the study was analysis of data given by exemplary teams to determine elements of common experience in organization, decision making, demographics, support, shared activities, and training. I analyzed these data in relation to current theories about necessary elements for team progress. In addition, I observed team meetings and used the qualitative data gathered to identify variations in the activities and perceptions of exemplary team members. Finally, using factor analysis and multiple regression analysis, I created a model which relates variations in team expertise to teachers' perceptions of factors valuable to team progress.
Step 1: Call randomly selected principals to determine if teams exist at their schools.

No Teams

Step 2: Survey and observe in middle level schools where principals reported teams to exist.

No Teams

Teams return Surveys/Observed

Step 3: Analyze to determine team domains where expert.

Domain 1: Organization
Domain 2: Student Concerns
Domain 3: Shared Responsibility/Growth
Domain 4: Coordination of Instruction

Analyze to determine differences.

Step 4: Analyze to determine common factors in team experience and their importance to team progress in teachers' perceptions. Include census data from state, if expert in all four domains.

Analyze to determine if teams with different focus value different experiences.

Step 5: Analyze to determine subsets of variables representing viable sociological constructs.

Step 6: Construct a model relating those constructs to team activities.

Figure 4: Data analysis design.
Data Collection and Analysis

Using data supplied by the Virginia State Department of Education, I telephoned principals of 30 randomly selected schools serving students in grades six through eight throughout the state. I explained the study, defined interdisciplinary team, and asked if they had teams in all grades with at least two years of experience. If the answer was affirmative, I asked if they would participate in the study. The principals of all twelve schools contacted who reported that their schools had teams agreed to participate. I mailed surveys to them and made appointments to visit the schools, interview and observe team meetings, and administer additional surveys. The package included a cover letter to the principal (see Appendix A), with an explanation of the project, the definition used in this study of interdisciplinary team, and assurance that schools or individuals will not be identified in the final report. I asked each principal to ask all team members in their schools to complete the surveys. The explanation assures the respondents that schools and individuals will not be identified in the final report.

Teaming Surveys

The teaming survey (see Appendix A) was composed of four sections. The purpose of Section 1 of the survey was to validate principals' responses. It contained short answer questions which I used to determine if the respondent
represented a team according to the definition in this study, how many years that team had been operating, and how many members had been on the team since its formation.

The purpose of Section II of the survey was to gather data that I used to determine on which domains respondents' teams are expert. The section contains 29 questions, seven in each of three subtests and eight for a fourth subtest representing domains of Erb and Doda's (1989) model of team operation as outlined in Figure 1. The directions indicate that the respondents should circle the number following each activity which best indicates how often their team participates in that activity. The scale is as follows:

0=Never    1=Infrequently
2=Frequently 3=Very Frequently

(See Appendix D for a list of questions in each subtest.)

Sections III and IV of the survey served the primary focus of this study. Their purpose was to gather data about commonalities in the development of exemplary teams and to report teachers' perceptions about how valuable these experiences were to their teams' progress. I designed the questions in these sections from theories in current literature concerning factors which encourage team progress. In addition, I interviewed members of some exemplary teams to learn what they considered important to team progress and included those factors in the survey. (For a summary of factors investigated in the survey, see Figure 2. For a
comparison of factors considered important to team growth by prominent authors in the field, see Figure 3.) In Section III, respondents were asked to check or circle answers which described teacher and student characteristics, and factors present during their teams’ development. In Section IV, respondents are asked to complete questions designed to probe their perceptions of the benefits of certain elements to team growth. They are asked to circle answers on a Likert-type scale ranging from 0=Not Applicable, 1=Detrimental to 5=Very Valuable. A final, open-ended question is designed to discover any factors which respondents think are important but were not included on the survey.

Pilot

Questions for the survey were piloted on two groups of team members. One group represented teams classified as exemplary teams by experts. The other group represented teams classified expert on only one or two domains. I discussed the survey questions with each group after they completed them. Using their input, I changed wording to clarify some questions, eliminated some subjects entirely, added some questions they thought important, and selected the best questions to remain on the survey.

The pilot group answered 80 questions for Section II. The questions were divided so that two questions represented each of ten activities indicative of team functioning at
each of the four levels. As a whole, questions in this section successfully distinguished team operating level. Two pair of questions were eliminated because respondents' answers were inconsistent, and two pair were eliminated because they did not indicate team expertise. From each remaining pair of questions, the one which most consistently predicted team expertise was selected for the final survey. An additional seven questions were eliminated because of overlap with questions in Section IV. Average time for pilot teachers to complete this section of the survey was 20 minutes, which indicated that Section II would consume about 10 minutes on the final survey.

Pilot teachers also completed questions for Sections III and IV of the survey. Following a group discussion, I eliminated several questions which they felt unqualified to answer, questions about race and age, census questions which supplied data readily available from the State Department of Education, and some which were redundant. Pilot teachers indicated that they felt that the survey was thorough in including all factors they considered important in team growth.

I completed a thorough analysis of the data gathered from these pilot surveys. From this analysis, I observed how patterns in the data could be expected to appear. In addition, experience organizing these data was valuable in constructing the coding method used to organize the data.
Teaming Survey Analysis

In the analysis, I used data collected from the surveys and from the Virginia State Department of Education. The focus of the data analysis was description of common factors in the formation of exemplary teams, and teachers' perceptions of the value of these factors to team progress.

I used data from the State Department of education to assign numbers to each team that will enable me to sort the responses by team, school, and teacher. Each respondent received a six-digit number, with the first two digits representing the school, the second two digits representing the team and the last two digits representing the teacher. I also analyzed school census data from the State to describe such demographic conditions as the number of students in individual schools, and the combination of grade levels in those schools, and to sort the schools by size to select randomly a sample from small, medium, and large schools. I entered all responses to all survey items into the SYSTAT program (Wilkinson, 1988), along with identifying numbers.

Scores on Section I determined if the respondent represented a team according to the definition in this study with at least two years of teaming experience. To be included in the study, the team also included at least 50% of its original members. Except for questions one and six, all answers must be "yes" for a team to have a team as
defined. I have, however, included some teams with only one daily planning period or less than two full years of experience in the study for purposes of comparison.

**Analysis of Section II**

Analysis of responses to Section II included computations of scores on each of the four subscales and a total score representing their sum. The purpose of these data was to indicate which teams were expert on which domains. (See Appendix D to determine which questions compose the subtest representative of each level.) The scoring method for the survey was as follows:

1. I recorded points on the following scale for each response:
   - 0 = Never
   - 1 = Infrequently
   - 2 = Frequently
   - 3 = Very Frequently

   (In most cases an answer of "3" represents team activity at a high level. To discourage automatic response, some of the questions are reversed, so that an answer of "0" represents very frequent team activity at that level. See Appendix D for the items in this category.)

2. I entered the scores into the SYSTAT (Wilkinson, 1988) analysis program, which provided four subtest total scores for each respondent and a grand total.
3. Using these scores, teams were sorted into categories using a scale determined by a panel of experts as follows: I randomly selected twenty percent of the respondent teams and summarized teachers' reports of the activities in which they participated at each level of frequency (see Appendix G for an example form). Experts on the panel assigned values ranging from 1 for "just beginning" to 5 for "extremely competent" to the teams for each domain. I determined limits on the subtest scores achieved by those ranked as expert (competent or very competent) on each domain. Using these scores, I determined the expertise of all teams surveyed on each domain.

4. I identified teams as exemplary if they were expert on three domains, and their score indicated nearly expert activity on the fourth.

5. Using the numbers assigned to each survey for identification purposes, I mapped the exemplary teams to discover patterns of response in the various schools.

Analysis of Sections III and IV

Analysis of the data in Sections III and IV of the survey is the focus of the study and yielded information on common factors in the experiences of these exemplary teams and teachers' perceptions of them. I coded demographic data
with one-digit numbers indicating the various possible answers. I entered these data into the SYSTAT program (Wilkinson, 1988), which determined distributions of data on teacher, student, school, and division characteristics, and on how teachers use planning time.

Section IV was coded using a Likert-type scale using the numbers which the teachers circles. (The "1" response was calculated as a "-1" so that factor considered by any respondent as detrimental to team progress will lower the total score for that factor.) I analyzed the responses to this section in two ways. First, I ranked responses from highest mean response lowest on each area listed in Figure 2. Second, I used this information to discover if there was any significant difference in the perceptions of teachers on the different forms of exemplary teams discovered from the qualitative data, and if there were differences between the perceptions of teachers on exemplary teams and teachers on less expert teams. I also analyzed the responses in relation to current theory noting agreement or disagreement with those factors reported as necessary to team development on Figure 3.

**Teachers' Work Environment Surveys**

The Work Environment Scale (WES) (Moos & Insel, 1974) is designed to measure the social climate in work places on ten dimensions, divided into three subscales (see Figure 5). It has been used in numerous studies and normed on national
samples. Although use of a short form of this test is not advised, Abraham and Foley (1984) developed such a form and found moderate internal consistency on all but Work Pressure and Control. Because of the length of the main survey and teachers reluctance to spend more time on this study, I used a short form of Moos' and Insels' instrument (see Appendix C). I administered it only to the teachers whose team meetings I observed. They were instructed to answer forty questions on a four-point scale:

1= False  2= Usually False  3= Usually True  4= True

Internal consistencies were acceptable (>.615) for use in this sort of study on all except Task Orientation, Control, and Peer Cohesion (see Table 1).

Since high Work Pressure is associated with negative environment, I reported adjusted scores which can be added to the scores of the other dimensions. I computed the totals on the three subscales as follows:

Relationship Dimension = Involvement + Supervisor Support

Personal Growth Dimension = Autonomy + Task Orientation

System Maintenance and System Change Dimension = Clarity + Innovation + Physical Comfort

Scores from the subscales were considered as factors in team development along with the scores on the items in Sections III and IV of the teaming survey.
### Table 1

Work Environment Scale Spearman-Brown Internal Consistencies

<table>
<thead>
<tr>
<th>Subscales</th>
<th>Moos’ Internal Consistency (N=1045) (Moos, 1981, p.5)</th>
<th>Short Form Internal Consistency (N=85)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement</td>
<td>.84</td>
<td>.701</td>
</tr>
<tr>
<td>Peer Cohesion</td>
<td>.69</td>
<td>.570</td>
</tr>
<tr>
<td>Supervisor Support</td>
<td>.77</td>
<td>.744</td>
</tr>
<tr>
<td>Autonomy</td>
<td>.73</td>
<td>.677</td>
</tr>
<tr>
<td>Task Orientation</td>
<td>.76</td>
<td>.581</td>
</tr>
<tr>
<td>Work Pressure</td>
<td>.80</td>
<td>.652</td>
</tr>
<tr>
<td>Clarity</td>
<td>.79</td>
<td>.702</td>
</tr>
<tr>
<td>Control</td>
<td>.76</td>
<td>.359</td>
</tr>
<tr>
<td>Innovation</td>
<td>.86</td>
<td>.731</td>
</tr>
<tr>
<td>Physical Comfort</td>
<td>.81</td>
<td>.619</td>
</tr>
</tbody>
</table>
**Relationship Dimensions**

1. **Involvement:** the extent to which employees are concerned about and committed to their jobs.

2. **Peer Cohesion:** the extent to which employees are friendly and supportive of one another.

3. **Supervisor Support:** the extent to which management is supportive and encourages employees to be supportive of one another.

**Personal Growth Dimensions**

4. **Autonomy:** the extent to which employees are encouraged to be self-sufficient and to make their own decisions.

5. **Task Orientation:** the degree of emphasis on good planning, efficiency, and getting the job done.

6. **Work Pressure:** the degree to which the press of work and time urgency dominate the job milieu.

**System Maintenance and System Change Dimensions**

7. **Clarity:** the extent to which employees know what to expect in their daily routine and how explicitly rules and policies are communicated.

8. **Control:** the extent to which management uses rules and pressures to keep employees under control.

9. **Innovation:** the degree of emphasis on variety, change, and new approaches.

10. **Physical Comfort:** the extent to which the physical surroundings contribute to a pleasant work environment.

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Figure 5: WES subscales and dimension descriptions.
Data Gathered From Observation

Although the primary sources of data in this study are surveys, systematic observation of team meetings and classroom situations, and interviews of principals and teachers provide data that could not be gathered from survey forms alone. Yin states that "The case study's unique strength is its ability to deal with a full variety of evidence--documents, artifacts, interviews, and observations." (1989, p. 20) In addition to yielding this unique body of evidence that can be used on its own merit or can be used to validate other data, systematic analysis of the data can yield theory which is grounded in events and objects (Glaser & Strauss, 1967) This sort of data can provide different views of social phenomena or richer data.

The purpose of the qualitative portion of this study is to provide different views of the theory and richer, more descriptive data, as well as to support survey data.

For the qualitative part of the study, I visited twelve schools, which represented a variety of socio-economic and cultural groups, and several regions of Virginia. I observed a total of 44 team meetings, interviewed ten principals and two assistant principals, and numerous teachers. (See Appendix E for release form assuring teachers of anonymity.) Although I did not intend to observe students at the outset of the study, I was invited to observe in several classes and two parent/student
conferences. The material from these interviews and observations was taken in short hand and recorded on a form designed to indicate specific team activities mentioned in Section II of the survey, and to obtain additional information not on the survey forms (see Appendix F). I transposed my field notes daily in order to include as many significant details as possible.

I included responses to the final, open-ended question about important factors which respondents did not feel were included in the survey and comments written by respondents on other parts of the survey as part of the qualitative data.

I analyzed that qualitative data for teams classified on the basis of the quantitative data as exemplary to discover patterns in their activities. One concern was to use the qualitative data to validate the survey data. Observations of team meetings did indicate that exemplary teams are active on all of the domains. In addition, I used open coding to describe various phenomena and highlight categories. After noting these categories, I was able to identify connections and similarities between which were not apparent from the responses to the surveys, and to identify variations in exemplary teams.

**Data Integration**

Factor analysis is a method of devising meaningful subscales on large groups of data (Isaac & Michael, 1981).
However, Wilkinson (1989) cautions against its use unless meaningful subscales result. Factor analysis in this study was used to reveal five groups of highly correlated items which delineated defensible sociological concepts.

Multiple regression analysis is used for two purposes—to yield $\beta$-weights to determine the degree of relationship between two or more predictor (independent) variables and a criterion (dependent) variables, or to yield an equation which will predict the criterion scores of individuals in a sample (Isaac & Michael, 1981). I computed a multiple regression equation for these data using the five subscales identified in the factor analysis as predictor variables. Only two of the subscales were significant predictors, with over 50% of the variation in the criterion variable related to the variation in the predictor variables. I reported both the resulting equation and the $\beta$-weights in the analysis.

Reliability and Validity

Several methods are included in the research design to limit threats to reliability and validity. These threats might be the result of self-selection, misunderstanding questions, misrepresentation of the strength of teams, error in coding or recording responses, misinterpretation of the model, or the failure to include a number of important factors in the survey.
The most severe limitation to gathering these data is non-response. I concluded that the best way to limit non-response was to visit each school to collect the surveys (Fowler, 1984). Responses were returned by the majority of teachers in nearly all of the schools. In one school, the principal did not give the survey to eighth grade teachers, and in another the principal did not give the survey to seventh grade teachers. Neither of these principals gave a reason for this. I estimate that of 292 team surveys possible, 259 were returned. I administered the modified Work Environment Scale to some teachers on each team which I observed, and only one teacher declined to complete the form.

The study is designed to limit damage by three other threats to reliability. First, I attempted to limit misunderstanding of the questions by carefully discussing them with the pilot group and clarifying or eliminating difficult questions (Fowler, 1984). I attempted to insure honest responses by insuring confidentiality and requesting that the surveys were returned directly back to me so that respondents would not be concerned about evaluation of their responses by their superiors. (However, in some schools, the principals did collect the surveys.) In Section II, some responses are reversed to avoid automatic response. I also determined that the variances in responses among team members were small.
I coded and entered the data into the computer myself. In order to judge the weight of coding and data entry error, I asked two other people to check computer entries on a percentage of my work. I then ran print-outs of the data, checked them against the original surveys, and corrected where necessary.

The validity of the division of the teams into levels is based on the judgement of four individuals who are widely acknowledged as expert in this field. I attempted to insure the validity of the last two sections of the survey by including as many of the factors listed in the literature as possible and by asking the pilot teachers to add other factors they considered important. The final question allows respondents to contribute to data validity by including important factors that may have been omitted from the survey.

The validity of the qualitative data is in part established using the support of the quantitative data in showing differences in team activities and teachers perceptions. A great deal of the validity of qualitative data is based on the relationship of the observer to the subjects. I attempted to establish trust by assuring anonymity, and by showing sympathy to team members concerns for the amount of time spent on the surveys and to other complaints about administrators, students, and teaming. In addition, it was made clear to the team members that this
was independent dissertation research that was in no way related to their evaluations, and my notes of their meetings would be reported in such a way that they could not be identified. Most teachers observed on exemplary teams did not indicate undue concern about anonymity. Many were proud of their activities and would have been willing to be identified.

I attempted to assure reasonable validity of the multiple regression equation by using a method of construction suggested by Huck, Cormier and Bounds (1974) and referred to as cross-validation. I used a randomly selected 50% of the responses to create the model. I then compared the predicted criterion variables with the actual criterion variables for the other half of the responses. T-tests showed no significant differences, indicating that the regression equation was at least a valid for the criterion variable in other half of the sample.

Summary

The research involved six successive analysis stages to yield information about exemplary teams in Virginia middle level schools which have been operating for at least two years and which still include at least 50% of their original members. The first step was to locate teams; the second was to classify teams according to their level of operation; and the third is to determine common and valuable factors, according to teachers' perceptions, in the evolution of
these exemplary teams, and differences in their practices and perceptions. Using the data gathered, I devised a profile of teachers, students and schools attached to exemplary teams. I reported which of the elements considered necessary to team growth in current literature have actually been present during the development of these teams and to what extent team members value these factors. I have identified subscales of these elements and related them to team activities using multiple regression analysis. In addition, qualitative data resulted in identification of variation of exemplary teams.
The purpose of this study is to identify a sample of teams which operate effectively on all four domains of Erb and Doda's (1989) model of interdisciplinary team organization, to report factors which, according to members' perceptions, contributed to team development, and to identify variations in team behaviors and perceptions among exemplary teams. To accomplish this purpose, I located twelve schools whose principals reported teams which had been in operation at least two years with two daily planning periods, and a block schedule of time during which they were responsible for teaching the four core subjects to a shared group of students. I surveyed teachers in those schools to determine in which activities their teams participated, some demographic data, teachers' perceptions of their work environment, and which experiences they valued most in the development of their teams. I also visited each school, observed team meetings, and interviewed teachers and principals. As a result, I have identified sixteen exemplary teams, the variations among them, the climates in which they function, and the experiences their members value in the growth of their teams.
Locating a Sample of Interdisciplinary Teams

The first research question asks where in Virginia are teams located which have been in operation for two years with 50% of their original members. *Fall Membership in Virginia's Public Schools 1990-1991* (Commonwealth of Virginia, 1990) lists 156 schools as serving only students in grades six through eight. Population sizes ranging from 50 to 1900 students are nearly normally distributed among these schools, with the mean near 700 students. Since one of the commonly cited purposes for teaming is to reduce the size of student social groups (Arhar, Johnson & Markle, 1989), I selected schools of different sizes for this study. To locate schools in which teaming is practiced, I randomly chose seven small schools, 15 medium schools, and 8 large schools, a total of 19.3% of Virginia schools serving grades six through eight exclusively (see Table 2).
Table 2

Population in Virginia Schools Serving Grades 6-8 and Selected Principals' Responses on Presence of Teaming

<table>
<thead>
<tr>
<th>Student Population</th>
<th>Total Schools Interviewed</th>
<th>Principals Present</th>
<th>No Inexperienced Teams</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-549</td>
<td>39</td>
<td>7*</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>550-899</td>
<td>71</td>
<td>15</td>
<td>6</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>900-1800</td>
<td>42**</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
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<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>

*No information given about interdisciplinary teams was given at one school.

**One of the large schools is actually listed as two medium sized schools. It is located in two buildings on a single campus, each with a "building principal", while a "campus principal" works with both buildings. Since teachers, students and administrators at these buildings consider them as one school, I have also considered them as one large school.

In telephone interviews, the principals of these schools responded to the following questions:

1. Do you have interdisciplinary teams in your school?
2. For how long have these teams been practicing with at least 50% of their current members?
3. Which grade levels are included in teams and how many teams operate at each grade level?
4. Do the teachers on these teams share a common group of students, a common schedule, and responsibility of teaching core subjects—language arts, social studies, mathematics, and science?

5. Do the teachers on these teams have two daily planning periods—one for individual planning and another common time for team planning?

Twelve (40%) of the principals interviewed reported that their schools did have interdisciplinary teams according to the definition in this study. Nine (30%) reported no teams or a different arrangement of teams and eight (26.7%) reported teams that were just beginning. One (3.3%) declined to give any information.

Characteristics of Sample Schools

The twelve schools which were selected for survey and observation because of the presence of experienced teams serve 8,968 students (Commonwealth of Virginia, 1990) from a variety of socio-economic and cultural groups throughout the state of Virginia. According to the principals, three of the schools are in urban areas and serve mostly minority populations. Students from these schools live in a variety of neighborhoods including public housing projects, apartments, and middle-class owner-occupied homes. Two of the schools are in rural areas in which many parents are
farm-owners. One of these areas is described by the principal as "wealthy" and the other as "poor". Three of the schools serve students from suburban areas, one of which is described as radically affected by an influx of urbanites, and one of which serves mostly military families. Two of the schools serve rural areas in which many adults are employed in food processing or light manufacturing plants. One school is in a rural area from which many adults commute to work in a nearby city and which is rapidly changing into a suburb. One school is a "fundamental" school to which students from throughout the district commute. They are accepted on the basis of willingness to fully participate in the academic program. The student population of some of the schools was nearly all minority children, while at others it was nearly all Caucasian, and at others it represented a mixture.

Differences Among Sample Schools

As indicated in Table 1, the number of teams in the schools varied. In addition, my access to them varied. At some schools, I received completed surveys from most teachers, representing all of the teams, while at other schools I received surveys from only a few teams. It appears that some principals required all teachers to complete the surveys, while others distributed the surveys to only some faculty members. At most schools, I observed from four to six team meetings. Table 3 contains
information on the number of students, teachers, and teams, as reported by the principals, and the number of teams surveyed at each of the twelve schools.

Table 3
Students, Faculty, and Teams in Twelve Selected Schools

<table>
<thead>
<tr>
<th>School</th>
<th>Student Population</th>
<th>Faculty Size</th>
<th>Teams Present</th>
<th>Teams Surveyed</th>
<th>Faculty Surveyed</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>507</td>
<td>37</td>
<td>6</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>12</td>
<td>321</td>
<td>31</td>
<td>3</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>13</td>
<td>405</td>
<td>29</td>
<td>5</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>21</td>
<td>859</td>
<td>44</td>
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</tr>
<tr>
<td>22</td>
<td>576</td>
<td>40</td>
<td>3</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>23</td>
<td>588</td>
<td>42</td>
<td>7</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>24</td>
<td>781</td>
<td>47</td>
<td>6</td>
<td>6</td>
<td>26</td>
</tr>
<tr>
<td>25</td>
<td>655</td>
<td>49</td>
<td>6</td>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td>26</td>
<td>822</td>
<td>42</td>
<td>11</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>31</td>
<td>1423</td>
<td>84</td>
<td>16</td>
<td>16</td>
<td>46</td>
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<tr>
<td>32</td>
<td>927</td>
<td>45</td>
<td>13</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>33</td>
<td>1104</td>
<td>72</td>
<td>10</td>
<td>10</td>
<td>41</td>
</tr>
<tr>
<td>Total</td>
<td>8968</td>
<td>562*</td>
<td>92</td>
<td>71</td>
<td>259</td>
</tr>
</tbody>
</table>
*Includes staff members not on teams.

Ten of the twelve schools surveyed and visited met the criteria for interdisciplinary teaming for this study. At two schools, teachers had only one planning period. Teams met after school once per week at one of these, and during the common planning time twice per week at the other.
Questions arose at two other schools about planning time. At one school, teams of teachers had common planning periods during the school day and a period of time before students arrived in the morning during which they were to be in the building. Judging this to be the individual planning period, I included this team as having two daily planning periods. At another school, team members reported that they had voted to use some of their planning time twice per week to act as hall of cafeteria monitors. I also included this team in the sample as having two planning periods daily. At one school, only the seventh grade teams had two planning periods, while the sixth and eighth grade teams had one. In all, of the 71 teams surveyed, 55 met the criteria originally planned for this study. Of the other 16, seven had less than two years of teaming experience, seven had only one planning period, and two had only one planning period and less than two years experience. I decided to use all of the teams in the study because two of these met the criteria for exemplary teams.

Teachers' Work Environment in Sample Schools

Environment in the work place has long been recognized as important to morale, productivity, and decreased absenteeism (Moos, 1981). Proponents of school reform included school climate as important in effective schools (Edmonds, 1980). This climate, although variously defined,
included peer respect, and an orderly atmosphere. Moos states, "schools in which teachers reported more cohesion and less autonomy had students with higher reading achievement." (1981, p.28) Arhar, Johnson & Markle (1989) and Erb (1987) recognize teacher interaction and changing patterns of communication as important factors in the value of teaming. Epstein and Maclver cautioned that teaming may not succeed, or may have negative effects if administrators neglect to prepare an atmosphere conducive to teaming (1990). Investigation of the teachers' work environment provided interesting information related to teaming.

As noted in Chapter 3, internal consistency scores on the modified version of the Work Environment were moderate on seven of the dimensions: involvement, supervisor support, autonomy, work pressure, clarity, innovation, and physical comfort. Scores on the subscales tend toward positive perception of school climate throughout the whole sample. As seen in Figure 6, the distribution of scores on the Relationship subscale is positively skewed, indicating that many teachers in this sample of schools with teams at all levels of expertise reported positive climates at their schools. Although higher than 50% of the possible score, the means for the Personal Growth and System Maintenance Dimensions do not clearly indicate such a positive climate. In this sample the mean score for the Relationship Dimension, with a maximum of eight and a minimum of zero, is
For the Personal Growth Dimension (maximum=8, minimum=0) the mean score was only 4.426 (sd=1.320, N=85). On the System Maintenance subscale (maximum=12, minimum=0) the mean in this sample was 7.891 (sd=2.089, N=85). The distributions of these subscales are displayed in Figures 7 and 8.
Figure 6: Distribution of scores on Relationship subscale modified Work Environment Scale (N=85).
Figure 7: Distribution of Scores on Personal Growth Subscale of modified Work Environment Scale (N=85).
Figure 8: Distribution of scores on System Maintenance and System Change subscale of modified Work Environment Scale (N=85).
Identifying Exemplary Teams

The second research question concerns identifying the activities in which teams participate and identifying exemplary teams based on their activities. Based on judgements of four experts in the field of interdisciplinary teaming, I identified activities of exemplary teams and used them to identify sixteen exemplary teams from the sample of 71 surveyed. Fourteen of these exemplary teams meet the full criteria stated to principals. One exemplary team has only one planning period, while another has only one year of experience.

Distribution of Team Activities

Activities used to define effective teams on the four domains (see Figure 1) are represented as questions on Section II of the survey to determine how frequently teams participated in these activities. Scores ranged from 0 for "never" to 3 for "very frequently". For each survey, total scores on each domain are the sum of the scores from the subscales (see Table 4). Total scores for Domain 2 were slightly negatively skewed, while on the other three domains they were slightly positively skewed. On Domain 2, where the maximum score was 24, the mode score of 15 was given by 41 respondents. This score indicates a high percentage of "frequently" responses. On the other three domains, where the maximum score was 21, scores also represent high percentages of "frequently" responses. The modes were as
follows:

Domain 1 Mode=14 n=45; Domain 3 Mode=14 n=41
Domain 4 Mode=13 n=32

The range of Domain 1 was the narrowest, representing thirteen points, while the range of Domain 4 was 21.

Table 4
Distribution of Total Scores on Each Domain (N=259)

<table>
<thead>
<tr>
<th>Score</th>
<th>Domain 1 Count</th>
<th>Domain 1 %</th>
<th>Domain 2 Count</th>
<th>Domain 2 %</th>
<th>Domain 3 Count</th>
<th>Domain 3 %</th>
<th>Domain 4 Count</th>
<th>Domain 4 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>.39</td>
<td>1</td>
<td>.39</td>
<td>3</td>
<td>1.16</td>
<td>4</td>
<td>1.54</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>.77</td>
<td>1</td>
<td>.39</td>
<td>5</td>
<td>2.32</td>
<td>5</td>
<td>1.93</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>1.16</td>
<td>3</td>
<td>1.16</td>
<td>8</td>
<td>3.09</td>
<td>9</td>
<td>3.47</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>1.54</td>
<td>3</td>
<td>1.16</td>
<td>6</td>
<td>2.32</td>
<td>6</td>
<td>2.32</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>1.93</td>
<td>16</td>
<td>6.18</td>
<td>10</td>
<td>3.86</td>
<td>17</td>
<td>6.56</td>
</tr>
<tr>
<td>5</td>
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<td>4.25</td>
<td>2</td>
<td>.77</td>
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<td>6.56</td>
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<td>8.77</td>
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<td>3.47</td>
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<td>16</td>
<td>21</td>
<td></td>
<td>8</td>
<td>8.77</td>
<td>12</td>
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<tr>
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<td>2.70</td>
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<td>4.63</td>
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<td>2.70</td>
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<td>4</td>
<td>1.54</td>
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</tr>
<tr>
<td>MAX</td>
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<td>24</td>
<td></td>
<td>21</td>
<td></td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Range</td>
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<td></td>
<td>4-23</td>
<td></td>
<td>3-21</td>
<td></td>
<td>0-21</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
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<td></td>
<td>15.785</td>
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<td>12.523</td>
<td></td>
<td>12.754</td>
<td></td>
</tr>
<tr>
<td>(sd)</td>
<td>(2.676)</td>
<td></td>
<td>(3.630)</td>
<td></td>
<td>(3.325)</td>
<td></td>
<td>(4.548)</td>
<td></td>
</tr>
</tbody>
</table>
The Role of the Experts

To help insure construct validity, I asked four experts in the field of interdisciplinary teaming to help establish criteria for expertise on the four domains. I used their ratings on a sample of responses to construct criteria to rate all of the teams on all of the domains. I explained the study to the experts both by telephone and by letter. I sent each of them descriptions of twelve teams' responses to the survey, divided by frequency within each of the four domains (see Appendix F for a sample description). This description included the categories on the original survey form and a "disagree" category for teams on which team members' answers were more than one level apart. The experts completed a form ranking each team on each domain using a scale from one to five, where one indicated team activity levels as representative of a "Just Beginning" team and five indicated a "Very Competent" team.

Determining Expertise of Sample Teams

On average, the experts rated 2 (16.6%) of the twelve teams as "four" or "five" on all four domains. Of seven or eight activities in each domain, the experts tended to rate teams according to the following criteria:

5 if all items were recorded as "very frequently" or "frequently",
4 if only one or two items were not in these categories, and there were no "disagree" responses,
3 if three items were in "never" or "infrequently", or in the "disagree" category, and
2 or 1 with four or more items "never", "infrequently", or "disagree".
Each expert appeared to weight all items equally. However, if one or more items were "disagree" they lowered the score more than if these items were "never".

**Using Expert Ratings to Classify Other Teams**

I used team mean scores for each domain, scores on the individual questions, and the experts' ratings to determine the expertise of all 71 teams (see Table 5). Generally, teams should be "expert" on all four categories to be exemplary teams included in further analysis in this study. From the experts' ratings, I established numerical scores that I could use to classify all of the teams on all of the domains as either "expert" or "novice". A lower limit for the mean team score for each category reflected the experts' criteria. A lower limit for individual team members' scores in each domain further defined the "expert" category.

Disagreement posed an interesting problem, because often several disagreements in a domain offset each other yielding a high mean total score. To avoid including these teams in the "expert" category, I included the additional criteria that the mean of team response variance in each domain could not exceed a certain limit. I determined that these criteria classified the twelve sample teams as the experts had classified them. Using these criteria, I rated all teams on each domain and identified several teams from the total group which were considered "expert" on all four domains. Since Erb and Doda (1989) determined that, as
teams progress, less emphasis may be placed on old skills, I made allowance for these lower scores, including in the "exemplary" category teams which had high mean total scores in three domains and a mean total score slightly less than the limit in the fourth domain.

Table 5

Criteria Used to Determine Teams Rated as "Expert" in Each of the Four Domains

<table>
<thead>
<tr>
<th>Domain</th>
<th>Scores Necessary to be Classified as &quot;Expert&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum Mean</td>
</tr>
<tr>
<td>Organization</td>
<td>14.0</td>
</tr>
<tr>
<td>Attention to Students</td>
<td>15.5</td>
</tr>
<tr>
<td>Shared Growth &amp; Responsibility</td>
<td>13.5</td>
</tr>
<tr>
<td>Coordination of Instruction</td>
<td>13.0</td>
</tr>
</tbody>
</table>

Analysis indicates that there is significant statistical difference between mean scores for all four domains between exemplary teams and those less expert. There is also a significant statistical difference between the total score—the sum of scores on all four domains—for exemplary and other teams (see Table 6).
Table 6

Domain and Total Activity Scores As Reported by Teachers from "Novice" and "Exemplary" Teams

<table>
<thead>
<tr>
<th>Domain</th>
<th>Exemplary Mean (sd)</th>
<th>Novice Mean (sd)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain 1: Organization</td>
<td>14.942 (1.487)</td>
<td>13.319 (3.519)</td>
<td>3.251</td>
<td>.001</td>
</tr>
<tr>
<td>2: Attention to Students</td>
<td>17.346 (2.457)</td>
<td>15.377 (3.773)</td>
<td>3.575</td>
<td>.000</td>
</tr>
<tr>
<td>3: Shared Growth/ Responsibility</td>
<td>14.558 (1.974)</td>
<td>11.986 (3.384)</td>
<td>5.256</td>
<td>.000</td>
</tr>
<tr>
<td>4: Coordination of Curriculum</td>
<td>17.058 (2.539)</td>
<td>11.633 (4.260)</td>
<td>8.791</td>
<td>.000</td>
</tr>
<tr>
<td>TOTAL ACTIVITY</td>
<td>63.904 (5.948)</td>
<td>52.314 (10.485)</td>
<td>7.660</td>
<td>.000</td>
</tr>
</tbody>
</table>

From the 55 teams with two planning periods and at least two years of teaming experience, I identified 14 (25.5%) as exemplary. Eight teams were classified as "expert" in all four domains, while six teams were "expert" on three domains. In addition, one (14.3%) inexperienced team and one (14.3%) team with only one planning period were also rated as exemplary. It is important to note that the inexperienced team is composed of teachers who had previous teaming experience, and the exemplary team with only one planning period is from a school in which teaming has been practiced for fifteen years.
Exemplary teams were located in seven of the ten schools with two planning periods and one school with only one planning period. They were fully representative of the socio-economic and population size groups established in the original sample and explained above. Students in these schools represented urban, suburban, and rural environments, poverty, middle class, and relative wealth, and white and minority races.

Patterns of development by school

Exemplary teams are distributed widely among schools of various sizes. Two of the 13 teams surveyed (15.4%) at small schools are exemplary. At middle sized schools, four of 17 teams with two planning periods surveyed (23.5%) are exemplary, while of ten teams with only one daily planning period at middle sized schools, one (10%) was exemplary. In large schools, of the 31 teams surveyed, nine (29%) were exemplary. (One of these had been functioning for only one year.)

There is evidence that the focus and expertise of the team is determined, in part by the emphasis put on various teaming activities in the school in which it is located. Throughout the literature, reference is made to the importance of the school leadership in the development of teams. Erb and Doda (1989) stress that a schedule for expected development should be given to the teams by the
administration. This schedule would necessarily represent, in part, the personal preferences of the principal, the school board, the central office administration, and the faculty. Although comparison between schools is flawed because I did not have access to all teams at all schools, data on Table 7 indicate patterns in team development in the twelve schools surveyed.

Table 7

Percentage of Teams Surveyed Rated "Expert" in Each Domain by School

<table>
<thead>
<tr>
<th>School</th>
<th>Domain 1</th>
<th>Domain 2</th>
<th>Domain 3</th>
<th>Domain 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>60.0% (3)</td>
<td>40.0% (2)</td>
<td>20.0% (1)</td>
<td>20.0% (1)</td>
</tr>
<tr>
<td>12</td>
<td>33.3% (1)</td>
<td>0% (0)</td>
<td>33.3% (1)</td>
<td>100.0% (3)</td>
</tr>
<tr>
<td>13</td>
<td>60.0% (3)</td>
<td>20.0% (1)</td>
<td>20.0% (1)</td>
<td>60.0% (3)</td>
</tr>
<tr>
<td>21</td>
<td>66.7% (4)</td>
<td>33.3% (2)</td>
<td>50.0% (3)</td>
<td>50.0% (3)</td>
</tr>
<tr>
<td>22*</td>
<td>50.0% (1)</td>
<td>0% (0)</td>
<td>0% (0)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>23</td>
<td>0% (0)</td>
<td>66.7% (2)</td>
<td>0% (0)</td>
<td>66.7% (2)</td>
</tr>
<tr>
<td>24**</td>
<td>33.3% (2)</td>
<td>50.0% (3)</td>
<td>50.0% (3)</td>
<td>16.7% (1)</td>
</tr>
<tr>
<td>25***</td>
<td>0% (0)</td>
<td>25.0% (1)</td>
<td>25.0% (1)</td>
<td>50.0% (2)</td>
</tr>
<tr>
<td>26</td>
<td>66.7% (4)</td>
<td>50.0% (3)</td>
<td>66.7% (4)</td>
<td>83.3% (5)</td>
</tr>
<tr>
<td>31</td>
<td>37.5% (6)</td>
<td>75.0% (12)</td>
<td>69.2% (11)</td>
<td>37.5% (6)</td>
</tr>
<tr>
<td>32</td>
<td>80.0% (4)</td>
<td>80.0% (4)</td>
<td>60.0% (3)</td>
<td>100.0% (5)</td>
</tr>
<tr>
<td>33</td>
<td>60.0% (6)</td>
<td>20.0% (2)</td>
<td>40.0% (4)</td>
<td>30.0% (3)</td>
</tr>
</tbody>
</table>

*Teams in these schools have only one planning period.
**Half of the teams surveyed in this school had only one planning period.
It appears that organization is stressed in seven of the ten schools, with at least 50% of teams surveyed being "expert" in these areas. Teachers or administrators in these schools gave me copies of the forms required for reporting minutes, agendas, and follow-up activities. Team meetings were required daily in five of them, with reports to the administration. On the other hand, in two of the schools, no teams showed expertise in this domain. Team meetings were reported to be loosely organized and not required daily.

Five of the schools, as is to be expected from reasons given for teaming in the current literature (Arhar, Johnson & Markle, 1988), have at least 50% of teams expert in attention to students, while two reported no expert teams on this domain. Seven of the schools have lower percentages of activity concerned with attention to students. The most usual activity in this category was discussion of student problems and solutions. However, the questions on the survey did not necessarily determine the tone of discussions of student problems and solutions. A wide range of activities from assigning detention to working with a social worker to help a battered child could have been included in this "attention to students" activity.

Only in five schools were at least 50% of teams expert in sharing responsibility and professional information. It appears from several teacher comments such as, "We discuss
those things in departmental meetings" that specific classroom techniques remain the realm of the disciplines. Other teachers commented that their teams had no funds, and no input in planning staff development meetings. Although Erb and Doda (1989) indicate the importance of the principal arranging time for teachers to observe their peers' teaching methods, many teachers indicated that they did not do so because they were all teaching at the same time and no such arrangements were available in their schools.

In seven schools 50% or more of teams reported frequent activity in the areas of coordination of instruction. As indicated by Erb and Doda (1989) and Plodzik and George (1989), many teams begin with this impressive part of teaming without sufficient background to sustain it. In the schools reporting few teams with expertise in this area, other areas took priority. In one, a small school in an urban area, the emphasis is on maintaining an orderly, friendly atmosphere, and keeping students on task. In this school, the principal is active in curriculum planning and design. In two very large schools, most observed and reported team time is spent on the other three aspects of teaming. In these schools, the emphasis is on forming the "small social group" (Lipsitz, 1984). Teachers still consider themselves subject area experts, and the administration expects primarily coordination concerning dates of tests, major projects, and field trip activities.
The other two schools in which coordination of instruction is not popular are those in which some or all of the teachers have only one planning period daily.

**Variations in Teachers' Work Environment by School**

There are significant differences among the schools in the sample on the subscales of the modified Work Environment Scale used in this study (see Table 8). Of the twelve schools surveyed, teachers at two (13 and 22) consistently scored the work environment in their schools as lower than did teachers in the other schools. Likewise, teachers at three schools (11, 26, and 24) consistently scored their schools higher on all three subscales. One of the schools (22) that scored low on the subscales had no exemplary teams. Teachers in that school had only one daily planning period. On the other hand, there are exemplary teams at all three of the schools which scored high on the subscales. One of these schools (26) is the school with the largest percentage of exemplary teams. Each of the other two has only one exemplary team. It is interesting to note that one of the schools at which work environment was rated highly (24) is the school which, even with only one daily planning period, has an exemplary team. On these subscales, the four schools with no exemplary teams (12, 22, 23, and 25) seem to be situated throughout the continuum of scores. One school, in which some teachers have one daily planning period while others have two (25), ranks high on all three subscales. In
addition, there is no significant difference between the scores of the teachers with one planning period and the teachers with two on the Relationship or Personal Growth subscales. On the System Maintenance and System Change subscale, there is a significant difference, with the teachers with two planning periods rating the school higher. (Means=7.000 and 7.938, t=3.712, p=.014).

Patterns of Development by School Division

Although six or more schools seem to stress development of activities on each domain, only two schools have a high percentage of teams expert on all four domains. The importance of the central office administration in the formation of the middle school concept was stressed by Alexander and George (1981). These schools might serve to illustrate this point. They serve very different populations, and are different sizes. In addition, the work environment scores on all three subscales tend to be higher at one school (26). However, they are both in the same school division.
Table 8
Modified Work Environment Scale Subscale Scores by School

Relationship
\( (F=4.584, p=.000, \text{ Tukey HSD}<.05) \)

<table>
<thead>
<tr>
<th>School</th>
<th>22*</th>
<th>13</th>
<th>32</th>
<th>12@</th>
<th>31</th>
<th>23@</th>
<th>33</th>
<th>21</th>
<th>25*</th>
<th>24*</th>
<th>11</th>
<th>26</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD</td>
<td>1.869</td>
<td>1.229</td>
<td>1.328</td>
<td>.354</td>
<td>2.023</td>
<td>1.126</td>
<td>1.171</td>
<td>.655</td>
<td>1.097</td>
<td>.765</td>
<td>.829</td>
<td>.864</td>
</tr>
<tr>
<td>N</td>
<td>9</td>
<td>6</td>
<td>7</td>
<td>2</td>
<td>6</td>
<td>8</td>
<td>6</td>
<td>11</td>
<td>7</td>
<td>11</td>
<td>4</td>
<td>7</td>
</tr>
</tbody>
</table>

---

Personal Growth
\( (F=6.086, p=.000, \text{ Tukey HSD}<.05) \)

<table>
<thead>
<tr>
<th>School</th>
<th>22*</th>
<th>32</th>
<th>12@</th>
<th>13</th>
<th>21</th>
<th>33</th>
<th>24*</th>
<th>23@</th>
<th>31</th>
<th>26</th>
<th>11</th>
<th>25*</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD</td>
<td>1.429</td>
<td>.705</td>
<td>.530</td>
<td>.957</td>
<td>1.043</td>
<td>1.038</td>
<td>.924</td>
<td>.917</td>
<td>1.000</td>
<td>1.015</td>
<td>.427</td>
<td>1.179</td>
</tr>
<tr>
<td>N</td>
<td>9</td>
<td>7</td>
<td>2</td>
<td>6</td>
<td>11</td>
<td>7</td>
<td>11</td>
<td>6</td>
<td>8</td>
<td>7</td>
<td>4</td>
<td>7</td>
</tr>
</tbody>
</table>

---

System Maintenance and System Change
\( (F=10.366, p=.000, \text{ Tukey HSD}<.05) \)

<table>
<thead>
<tr>
<th>School</th>
<th>13</th>
<th>22*</th>
<th>32</th>
<th>25*</th>
<th>21</th>
<th>23@</th>
<th>12@</th>
<th>31</th>
<th>24*</th>
<th>26</th>
<th>11</th>
<th>33</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD</td>
<td>1.538</td>
<td>1.858</td>
<td>1.310</td>
<td>.585</td>
<td>1.272</td>
<td>1.589</td>
<td>.000</td>
<td>1.866</td>
<td>.917</td>
<td>2.344</td>
<td>1.435</td>
<td>1.180</td>
</tr>
<tr>
<td>N</td>
<td>7</td>
<td>7</td>
<td>11</td>
<td>6</td>
<td>2</td>
<td>8</td>
<td>11</td>
<td>7</td>
<td>4</td>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* denotes school with one daily planning period. @ denotes school with no exemplary teams.
Hierarchal Development

There is some evidence in the data to support the notion of a hierarchal development of teams over time (Erb and Doda, 1989; Plodzik and George, 1989). Of the 55 teams with sufficient planning time and experience, 32 (58.18%) follow the hierarchal pattern. Five (9.09%) are expert on no domains; 8 (14.55%) are expert on Domain 1; 2 (3.64%) are expert on Domains 1 and 2; 3 (5.45%) are expert on Domains 1, 2, and 3; and 14 (25.45%) are exemplary. On the other hand, 23 (41.82%) fall into other categories. Erb and Doda (1989) account for these other categories by noting that these are the teams that, without sufficient foundation, will not continue functioning or will be forced to reorganize and develop expertise at lower domains before they can grow further. The distribution of scores on each domain (see Table 4) further supports this notion. Where Domain 1 has a fairly narrow range of total scores (13), Domain 4 has a range of 21, and the modal scores decrease slightly. (Note that the total possible score on Domain 2 is 24, while it is 21 on the other domains.) There is evidence that this hierarchal development pattern is dependent on extended time. Of eight inexperienced teams in the sample, only one is exemplary. All of the members of this team indicated previous teaming experience. Five of these teams were expert only on one domain.
Teams with Only One Daily Planning Period

Although the stated conditions of the study included that the teams observed have two planning periods daily, I found that all teams in two of the schools I visited and some teams in one had only one planning period. I have included data from these teams: first, because it contrasts with the conditions in other schools; second, because one of the exemplary teams had only one planning period; and third, because it lends support to the theory that team members should have two daily planning periods in order for teams to thrive. In one of the schools, team planning took place one day per week after school. In one school, seventh grade teams had two planning periods, while sixth and eighth grade teams used their one daily planning period twice per week for team activities. These schools are middle sized schools. One is in an urban area serving a large minority population. The other two are in rural areas serving mostly middle class families. Only one of these teams with a single daily planning period is exemplary, lending support to the theory that two daily planning periods are necessary for rapid team development.

From interviews, observation, and comments on the survey forms, it appears that teachers with only one daily planning period perceived both school and district administrators as not supportive of teaming. Their frustration was expressed in statements such as, "How can
they expect us to be as good as the seventh grade teams with only one planning period?" and "We cannot do the things that we would if we had two planning periods. There just isn't enough time! There is not enough money for more teachers, and we cannot possibly deal with even larger classes!" Teachers in these schools seemed to have formed a concept of an ideal school, and felt that they did not fulfill that concept. There was a sense of discouragement in these schools. One common comment was, "You know, we do not practice real teaming here." The single exemplary team in this group came from a school with two advantages: first, the administrator was strongly supportive; and second, they had been teaming for as much as fifteen years. This team compared favorably with teams from schools with two planning periods and is discussed below as an Administrative Team.

Frequency of Activities Reported by Expert Teams

Most of the activities listed by theorists (Alexander & George, 1981; Erb & Doda, 1989; and Plodzik & George, 1989) were popular among fully effective teams in varying degrees.

Domain 1: Organization

All of the seven items listed on the survey (see Appendix F) as characteristic of expertise in this domain were popular with teachers on the fully effective teams (see Table 9). These teachers reported overwhelmingly that their
teams followed Erb and Dada's methods for conducting team meetings, including regular meetings with agendas and minutes. They indicated somewhat less active use of group skills such as dispute resolution, improving communication, and insuring full participation. Teachers on these teams were confident that team members follow through on team decisions.

Table 9

Percentage of Teachers on Fully Effective Teams Reporting Activities at Each Level of Frequency and Mean of Responses at Each Level on Domain 1

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very Frequently</th>
<th>Infrequently</th>
<th>Never</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Regular meetings</td>
<td>96.08</td>
<td>1.96</td>
<td>1.96</td>
<td>1.96</td>
<td>2.885</td>
</tr>
<tr>
<td>Agenda</td>
<td>94.12</td>
<td>1.96</td>
<td>1.96</td>
<td>3.92</td>
<td>2.827</td>
</tr>
<tr>
<td>Minutes</td>
<td>98.04</td>
<td>1.96</td>
<td>0</td>
<td>1.96</td>
<td>2.923</td>
</tr>
<tr>
<td>Dispute resolution</td>
<td>59.62</td>
<td>28.85</td>
<td>0</td>
<td>11.54</td>
<td>2.365</td>
</tr>
<tr>
<td>Communication</td>
<td>33.33</td>
<td>29.41</td>
<td>29.41</td>
<td>9.80</td>
<td>1.846</td>
</tr>
<tr>
<td>improvement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full</td>
<td>52.94</td>
<td>33.33</td>
<td>1.96</td>
<td>13.73</td>
<td>2.231</td>
</tr>
<tr>
<td>participation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follow</td>
<td>65.38</td>
<td>30.77</td>
<td>1.96</td>
<td>1.96</td>
<td>2.596</td>
</tr>
<tr>
<td>through</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Domain 2: Attention to Students**

Reports of activity in this domain are nearly as strong on most elements as they were in the elements in the first domain (see Table 10). Teachers overwhelmingly indicate
that their teams very frequently plan together for parent conferences, recognize student successes, and seek solutions to particular students' problems. They indicate that they often regroup students when necessary for academic purposes. Less frequently they participate in team outings with their students, coordination with teachers not on the team, and use specific guidelines to schedule students. However, a consistent team discipline structure, which seems important to the theorists, is not as frequently practiced by these teams.

Table 10

Percentage of Teachers on Fully Effective Teams Reporting Activities at Each Level of Frequency and Means on Domain 2

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very Frequently</th>
<th>Frequently</th>
<th>Infrequently</th>
<th>Never</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conference planning</td>
<td>88.24</td>
<td>9.80</td>
<td>3.92</td>
<td>0</td>
<td>2.865</td>
<td>.397</td>
</tr>
<tr>
<td>Team outings</td>
<td>37.25</td>
<td>29.41</td>
<td>33.33</td>
<td>1.96</td>
<td>1.981</td>
<td>.874</td>
</tr>
<tr>
<td>Uniform discipline</td>
<td>9.80</td>
<td>17.31</td>
<td>27.45</td>
<td>47.06</td>
<td>.904</td>
<td>1.015</td>
</tr>
<tr>
<td>Schedule guidelines</td>
<td>35.29</td>
<td>21.57</td>
<td>21.15</td>
<td>23.08</td>
<td>1.673</td>
<td>1.184</td>
</tr>
<tr>
<td>Student solutions</td>
<td>80.39</td>
<td>19.61</td>
<td>1.96</td>
<td>0</td>
<td>2.769</td>
<td>.469</td>
</tr>
<tr>
<td>Recognition</td>
<td>96.08</td>
<td>1.96</td>
<td>1.96</td>
<td>1.96</td>
<td>2.885</td>
<td>.511</td>
</tr>
<tr>
<td>Regrouping</td>
<td>60.78</td>
<td>37.25</td>
<td>3.92</td>
<td>0</td>
<td>2.538</td>
<td>.576</td>
</tr>
<tr>
<td>Co-ord. w/non-team teachers</td>
<td>35.29</td>
<td>27.45</td>
<td>15.38</td>
<td>23.53</td>
<td>1.731</td>
<td>1.173</td>
</tr>
</tbody>
</table>
Domain 3: Shared Responsibility and Growth

This domain, as introduced by Erb and Doda (1989), is the staff development side of teaming. Teacher activity levels vary widely on these items (see Table 11). Teachers responded that their teams were very active in making decisions on team spending, acting as "advisors" to some team students, sharing information from graduate courses and conferences, and seeking solution to general classroom problems. Less frequently, they relied on team efforts to telephone parents. Current literature stresses the importance of peer coaching (Joyce & Showers, 1982) and teacher input into staff development programs (Joyce, 1990; Shanker, 1990). However, a minority of teachers in this group participate frequently in either of these activities.
Table 11
Percentage of Teachers on Fully Effective Teams Reporting Activity at Each Level of Frequency and Means for Domain 3

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very Frequently</th>
<th>Frequently</th>
<th>Infrequently</th>
<th>Never</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer observation</td>
<td>3.92</td>
<td>17.65</td>
<td>25.49</td>
<td>54.90</td>
<td>.750</td>
<td>.905</td>
</tr>
<tr>
<td>Funds</td>
<td>82.35</td>
<td>0</td>
<td>3.92</td>
<td>15.67</td>
<td>2.500</td>
<td>1.094</td>
</tr>
<tr>
<td>Advisor/advisee</td>
<td>84.31</td>
<td>17.65</td>
<td>0</td>
<td>0</td>
<td>2.827</td>
<td>.382</td>
</tr>
<tr>
<td>Telephone parents</td>
<td>41.18</td>
<td>27.45</td>
<td>23.53</td>
<td>9.80</td>
<td>1.981</td>
<td>1.019</td>
</tr>
<tr>
<td>Classroom solutions</td>
<td>98.04</td>
<td>1.96</td>
<td>1.96</td>
<td>0</td>
<td>2.942</td>
<td>.308</td>
</tr>
<tr>
<td>Input into staff</td>
<td>9.80</td>
<td>13.73</td>
<td>39.22</td>
<td>39.22</td>
<td>.962</td>
<td>.949</td>
</tr>
<tr>
<td>development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share professional</td>
<td>62.75</td>
<td>37.25</td>
<td>1.96</td>
<td>0</td>
<td>2.596</td>
<td>.534</td>
</tr>
<tr>
<td>information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Domain 4: Coordination of Instruction

Although planning and execution of thematic units are important aspects of teaming emphasized by many experts (Jacobs, 1991; Beane, 1991), the model includes other aspects of instructional coordination which are important in the daily operation of teams (see Table 12). Teachers in the sample in this study reported greater attention to the daily aspects of this domain than to specific concentration on new types of curricular organization or presentation. They reported being aware of what was being taught in other core subjects, carrying out instruction in basic skills in
all classes, and discussing curriculum in team meetings. Less often, they planned specifically to rearrange their curriculum for overlap in order to reinforce material being taught in other core classes, or to introduce new teaching techniques as a team. Planning and teaching interdisciplinary units is also done less frequently. Discussion with the teams revealed that the units planned were more likely to resemble Beane's (1991) definition of multidisciplinary units than true thematic interdisciplinary units.

Table 12

Percentage of teachers on Fully Effective Teams Reporting Activity at Each Level of Frequency and Means in Domain 4

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very Frequently</th>
<th>Frequently</th>
<th>Infrequently</th>
<th>Never</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aware of content in other subjects</td>
<td>74.51</td>
<td>25.49</td>
<td>1.96</td>
<td>0</td>
<td>2.750</td>
<td>.437</td>
</tr>
<tr>
<td>Teach basic skills</td>
<td>64.71</td>
<td>31.37</td>
<td>3.92</td>
<td>1.96</td>
<td>2.596</td>
<td>.634</td>
</tr>
<tr>
<td>Discuss curriculum</td>
<td>58.82</td>
<td>33.33</td>
<td>7.84</td>
<td>1.96</td>
<td>2.481</td>
<td>.700</td>
</tr>
<tr>
<td>New instructional techniques</td>
<td>35.29</td>
<td>49.02</td>
<td>17.65</td>
<td>0</td>
<td>2.212</td>
<td>.696</td>
</tr>
<tr>
<td>Overlap for reinforcement</td>
<td>49.02</td>
<td>39.22</td>
<td>13.73</td>
<td>0</td>
<td>2.365</td>
<td>.687</td>
</tr>
<tr>
<td>Plan interdisciplinary unit</td>
<td>58.82</td>
<td>19.61</td>
<td>23.53</td>
<td>0</td>
<td>2.365</td>
<td>.841</td>
</tr>
<tr>
<td>Teach interdisciplinary unit</td>
<td>43.14</td>
<td>41.18</td>
<td>17.65</td>
<td>0</td>
<td>2.288</td>
<td>.723</td>
</tr>
</tbody>
</table>
Factors in the Development of Exemplary Teams

The primary focus of this study, as articulated in the third and fifth research questions, is concerned with teachers' perceptions of factors in their experiences, the value of these factors in their teams' development, and the extent to which their responses support current theory. Survey questions were derived from a wide body of theory articulated in Figure 3 and designed to collect data on many of the items theorists deem important to team development. Included in these experiences are demographic factors such as the composition of the team, teacher education, certification, experience, number of subjects taught, and how teachers use planning time. In addition, factors such as work environment, teacher characteristics, staff development programs, administrative support, school organization and decision-making structure are noted by theorists as significant factors in team development. Teachers surveyed also called attention to the importance of interacting with other teachers as both cause and effect in the team-building process.

Team Composition

Sixteen exemplary teams have been identified in eight schools, including teams at all three grade levels studied, and ranging in membership from two to six teachers, and from 30 to 150 students. The most common configuration is two-teacher teams at the sixth grade level, with larger teams at
the seventh and eighth grade levels (see Table 13).

Table 13
Exemplary Team Membership

<table>
<thead>
<tr>
<th>Students &amp; Teachers</th>
<th>6th grade</th>
<th>7th grade</th>
<th>8th grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-60 students/2 teachers</td>
<td>6</td>
<td>1**</td>
<td></td>
</tr>
<tr>
<td>61-90 students/3 teachers</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>91-120 students/4 teachers</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>120+ students/5+ teachers</td>
<td>1*</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*This team is actually two smaller teams recombined.
**This team generally meets with another similar team.

In addition to the differences by size, these teams have different student populations. Current teaming theory (Erb & Doda, 1989; Alexander & George, 1981) note that it is important to balance students on the teams so that one team does not have all of the high ability students and another all of the low ability students. Ten of the sixteen exemplary teams in this sample have students on the teams distributed on about the same ability ranges as students in the whole school. Teachers on five of these exemplary teams report that their students are of higher general ability level than the school as a whole. Teachers on one of the teams report that their students are from the lower ability population in their school.
Teacher Characteristics

In a 1989 study, Plodzik and George concluded that teacher certification did not seem to affect team development. Of the 52 teachers in this sample, 45 hold middle school certification. Many hold certification at more than one level (see Figure 9). In seven of the eight schools with exemplary teams, more than 80% of the teachers hold middle school certification. However, in several of the schools teachers expressed confusion about the meaning of the middle school certification, and how they became certified. Some expressed the opinion that they were "really elementary or secondary teachers". It was their opinion that credits given during staff development programs to "make the school look good" were the reason for the middle school certification. In addition, in four schools more than 50% of teachers hold elementary certification. Secondary certification is held by more than 50% of teachers in four schools.
N=51  One teacher did not respond to this question.

Figure 9: Number and percentage of teachers on the exemplary teams studied holding elementary, secondary, middle, or multiple certification.
Erb and Doda (1989) stress the importance of administrators being careful to assign teachers to subject matter in which they are certified and feel competent. In addition, they write that middle school teachers should be certified to teach at least two subjects. On the survey, teachers responded to a question concerning which subjects they taught. There is no information in the data about in which subject areas they are certified. The balance among subjects taught on the teams is fairly even with 19 (36.5%) teaching science, 20 (38.5%) teaching mathematics, 17 (32.7%) teaching social studies, 26 (50%) teaching language arts, and 23 (44.2%) teaching reading. At some schools all teachers are required to teach reading, and at one school all are required to teach language arts. More than half (see Figure 10) of the teachers teach more than one subject. Fourteen of these are on two-teacher teams. Most of the other teachers teaching two subjects and all of the 22 teachers that teach three courses, instruct students in reading.
One Subject
22
(43.1%)

Two Subjects
6
(11.8%)

Three Subjects
21
(41.2%)

Five Subjects
2
(3.9%)

N=51 One teacher did not respond to this question.

Figure 10: Number of courses taught by teachers on exemplary teams in this study.
Although the middle school concept has been advocated for twenty years (Alexander & George, 1981), and has been expanding throughout the country (Alexander & MacEwin, 1989), many teachers from this sample are relatively new to middle school teaching (see Figure 11). Of the 52 teachers surveyed on exemplary teams, 24 (46.2%) had only two to five years teaching experience in the middle school. No data are available from the survey on their total years of teaching at other levels or in traditional junior high schools. There is no significant difference in experience levels by school ($F = 0.876, p = 0.533$).

Education reform proponents have recently argued for increased educational standards for teachers (Holmes Group, 1986). The stated goal in Virginia is to require all teachers to have a masters' degree. In this sample of exemplary teams, however, 35 (67.3%) of the teachers reporting had only a bachelors' degree (see Figure 12). Experienced teachers noted in interviews that recertification credits given for staff development programs were sufficient as far as they were concerned to maintain their professional expertise. There is no significant difference by schools as to the educational level of teachers on these exemplary teams. ($F = 0.396, p = 0.847$)
Figure 11: Experience level of teachers on exemplary teams identified (N=52).
Figure 12: Educational level of teachers on exemplary teams identified (N=52).
Use of Team Planning Time

In their report on implementation of the middle school concept, Maclver and Epstein (1990) noted that principals were hesitant to commit to the double planning periods required by interdisciplinary teaming theorists unless they felt that teachers were sufficiently trained to use that time beneficially. Erb and Dada (1989) stress the importance of all teaming teachers having two planning periods—noting that interdisciplinary teaming is impossible without this schedule arrangement. The question of daily planning periods is an important one at this time because school budget problems is causing increasing class sizes. If planning time is increased to implement teaming and the budget does not allow for additional staff, it is obvious that class sizes will increase. Teachers and administrators with whom I spoke were concerned about the increasing class sizes, but often commented that the team planning time was particularly important to their success.

Schedules vary to accommodate the dual daily planning periods. For the one identified exemplary team with only one planning period daily, team planning took place twice per week. For most of the other teams, the school schedule was arranged so that teaming teachers had two common planning periods consecutively. Often team meetings continued into the personal planning time. Sometimes teachers did some of their personal planning during team
planning time. In most cases, the schedule seemed to be flexible to accommodate the particular needs of the day.

On the survey, teachers were asked to estimate the amount of time their team spent on each of eight activities: personal preparation, coordination of content, student scheduling, regrouping students for instruction, discussion of specific student problems, planning solutions to those problems, planning special team events, and planning for parent and student conferences. In addition, a space was given for teachers to include other activities that took place during team planning time. Since the categories were broad and many teachers circled answers that totaled much more than 100% of team planning time, I have presented the data according to the emphasis each team puts on specific activities, rather than on actual percentages of time spent.

Most teachers responded that their team emphasized two or three activities, noting that the rest of the activities were practiced infrequently (see table 14). Only one team indicated that it practiced all listed activities equally. Most of the activities listed were practiced at least to some extent by all of the teams. The most common comments in the "other" activity category were that the team heard announcements from or filled out forms for the administration.
<table>
<thead>
<tr>
<th>Activity</th>
<th>No Activity</th>
<th>Some Activity</th>
<th>Frequent Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal planning</td>
<td>18.7</td>
<td>56.3</td>
<td>25.0</td>
</tr>
<tr>
<td>Curriculum co-ord.</td>
<td>12.5</td>
<td>50.0</td>
<td>37.5</td>
</tr>
<tr>
<td>Student scheduling</td>
<td>6.2</td>
<td>87.6</td>
<td>6.2</td>
</tr>
<tr>
<td>Student regrouping</td>
<td>12.5</td>
<td>87.5</td>
<td>0</td>
</tr>
<tr>
<td>Discussing problems</td>
<td>6.2</td>
<td>31.3</td>
<td>62.5</td>
</tr>
<tr>
<td>Planning solutions</td>
<td>6.2</td>
<td>24.7</td>
<td>69.1</td>
</tr>
<tr>
<td>Planning team events</td>
<td>12.5</td>
<td>75.0</td>
<td>12.5</td>
</tr>
<tr>
<td>Parent conferences</td>
<td>6.2</td>
<td>68.8</td>
<td>25.0</td>
</tr>
<tr>
<td>Administrative duties</td>
<td>12.5</td>
<td>43.7</td>
<td>43.8</td>
</tr>
</tbody>
</table>

Teachers from eleven of the sixteen teams indicated that a large portion of their team planning time was spent on discussing student problems and planning strategies to solve those problems. Of those, teachers from five teams also indicated that a substantial share of team planning time was spent on planning for or participating in parent or student conferences. This is consistent with the theory that the main strength of teaming is in more specific attention to students (Arhar, Johnson & Markle, 1989). Teachers on several of the teams indicated that a substantial amount of team planning time was spent on other
activities. Teachers on seven of the teams indicated that a large share of their team time was used for coordinating curriculum. This is certainly consistent with the concept that to be a completely effective team, teachers must coordinate curriculum. More than half of the teachers indicated some team time spent on personal planning, and teachers on three of the teams indicated that they spent much of their team planning time on personal planning. One of these teams had only one daily planning period. In addition, teachers from seven of the exemplary teams indicated that much of their team planning time is devoted to hearing announcements from the administration or filling out administrative forms. Teachers on these teams spend a minimum of time on student scheduling, regrouping, and planning special team events.

**Exemplary Teams' Work Environment**

Three of the seven dimensions on the modified Work Environment Scale showed statistical differences between novice and exemplary teams (see Table 15). Members of exemplary teams reported higher involvement in work, more clarity about expectations, and greater tendency toward innovation in their schools. In addition, there was a trend toward higher scores on supervisor support and autonomy. (Work pressure scores are reported so that a lower number represents higher work pressure. Higher work pressure reported by teachers on exemplary teams is not
inconsistent with the theory that there is more work involved in coordinating curriculum and more conflict involved in increased interaction on effective teams, creating higher work pressure.)

Table 15

Comparison of Modified Work Environment Scores on Novice and Exemplary Teams

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Novice</th>
<th>Exemplary</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(sd)</td>
<td>(sd)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship Dimension</td>
<td>5.702</td>
<td>6.330</td>
<td>1.696</td>
<td>.094</td>
</tr>
<tr>
<td></td>
<td>(1.503)</td>
<td>(1.465)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involvement</td>
<td>2.933</td>
<td>3.341</td>
<td>2.365</td>
<td>.020*</td>
</tr>
<tr>
<td></td>
<td>(.724)</td>
<td>(.610)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisor Support</td>
<td>2.770</td>
<td>2.989</td>
<td>.888</td>
<td>.377</td>
</tr>
<tr>
<td></td>
<td>(1.015)</td>
<td>(.934)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Growth Dimension</td>
<td>4.397</td>
<td>4.511</td>
<td>.349</td>
<td>.728</td>
</tr>
<tr>
<td></td>
<td>(1.719)</td>
<td>(1.761)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy</td>
<td>2.786</td>
<td>3.086</td>
<td>1.427</td>
<td>.157</td>
</tr>
<tr>
<td></td>
<td>(.842)</td>
<td>(.655)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Pressure</td>
<td>1.611</td>
<td>1.443</td>
<td>.833</td>
<td>.407</td>
</tr>
<tr>
<td></td>
<td>(.809)</td>
<td>(.827)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System Maintenance and Change Dimension</td>
<td>7.694</td>
<td>8.591</td>
<td>1.693</td>
<td>.094</td>
</tr>
<tr>
<td></td>
<td>(2.044)</td>
<td>(2.396)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clarity</td>
<td>2.750</td>
<td>3.193</td>
<td>2.103</td>
<td>.039*</td>
</tr>
<tr>
<td></td>
<td>(.899)</td>
<td>(.690)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovation</td>
<td>2.726</td>
<td>3.273</td>
<td>2.254</td>
<td>.027*</td>
</tr>
<tr>
<td></td>
<td>(.899)</td>
<td>(1.185)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Comfort</td>
<td>2.218</td>
<td>2.125</td>
<td>.412</td>
<td>.682</td>
</tr>
<tr>
<td></td>
<td>(.872)</td>
<td>(1.029)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Experiences Reported Valuable in Team Development

Based on the items theorists believe to be important to development of successful teams (see Figure 3), I developed thirty-eight questions as the last section of the survey (see Appendix B). Respondents gave answers ranging from 0
for "not applicable" through 5 for "extremely valuable" on questions dealing with specific experiences that their teams may have had. The questions were written to fit six theoretical subscales measuring teacher characteristics, school organization, support, training, team activity, and the decision making process. Data from these questions identify items which teachers think helped the development of their teams.

**Differences in Perceptions of Teachers on Novice and Exemplary Teams**

Although consideration of the perceptions of valuable factors of teachers not on exemplary teams was not a part of this study, it is useful to note that on five of the six subscales there was a significant difference in the mean scores of the exemplary and novice teams (see Table 16). Exemplary teams consistently scored higher on the appreciation of the factors which helped their teams grow. A large share of this difference is due to the difference in the number of experiences these teams did not have, therefore scoring a "0". Exemplary teams had few minimum scores of zero on these subscales, indicating that teachers experienced most of the factors investigated. Novice teams, on the other hand, had many minimum scores of zero, indicating that many teachers on those teams had not experienced the investigated factors.
There is no difference in the scores on the decision-making criteria. Most teachers on both exemplary and novice teams did not participate in the decision to begin teaming or in the choice of team members.

Table 16
Differences Between Novice and Exemplary Teams on Major Experience Factors

<table>
<thead>
<tr>
<th>Experience</th>
<th>Means and Standard Deviations</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exemplary Teams (N=52)</td>
<td>Novice Teams (N=207)</td>
<td></td>
</tr>
<tr>
<td>Teacher Characteristics</td>
<td>3.388 (0.706)</td>
<td>3.056 (1.154)</td>
<td>1.984</td>
</tr>
<tr>
<td>School Organization</td>
<td>3.351 (0.946)</td>
<td>2.701 (1.005)</td>
<td>4.210</td>
</tr>
<tr>
<td>Decision Making</td>
<td>2.087 (1.360)</td>
<td>1.839 (1.711)</td>
<td>.967</td>
</tr>
<tr>
<td>Administrative Support</td>
<td>3.821 (1.178)</td>
<td>3.014 (1.204)</td>
<td>4.332</td>
</tr>
<tr>
<td>Training</td>
<td>3.236 (0.836)</td>
<td>2.574 (1.120)</td>
<td>3.981</td>
</tr>
<tr>
<td>Team Activities</td>
<td>3.623 (0.637)</td>
<td>2.998 (1.000)</td>
<td>4.285</td>
</tr>
</tbody>
</table>

Individual items on which there were not significant differences between novice and exemplary team members

Of the thirty-eight individual items investigated, there was a significant difference in the responses of
teachers on exemplary and novice teams on twenty six.
(Since the focus of the study is responses made by members of exemplary teams, all means reported will be from exemplary teams unless otherwise noted. T-tests and p-values will indicate the significance of the differences or lack thereof between the responses of the exemplary and novice groups even though the scores of the novice groups are not reported.)

In addition to the decision making factors mentioned above (see Table 17), those specific items not showing a significant difference include the teacher characteristics of middle level experience, graduate training in middle school issues, previous inclination to collaborate with peers, and eagerness to try teaming. Also included are the support factor of the principal setting goals for the team, and training in scheduling, and conducting meetings. Nor was there a difference of perception between these groups of teachers on the importance of training, including visiting other schools and training beginning at least six months before teaming began. In the area of team activities perceptions of novice and exemplary team members differed on all but the importance of having specific guidelines for meeting behavior. Of these twelve items, seven were perceived as valuable by neither group. (Mean score<2.52; maximum=5.0.) Four were considered valuable (Mean score>3.0). Four, with mean scores between 2.52 and 3.5
are considered somewhat valuable. Only one, teacher experience in middle school, is considered very valuable.

It is interesting to note that none of the items on which there was not a significant difference between novice and expert teams was considered among the most valuable of the experiences of the expert teams. The item in this group with the highest mean score given by members of expert teams concerned teacher experience at the middle school level (mean=3.981, sd=1.1180, t=.742, p=.459). There are eleven items on the list of experiences considered valuable to members of exemplary teams with mean scores equal to or higher than 3.981.
### Table 17
Exemplary Team Members’ Responses to Individual Items Not Significantly Different Between Novice and Exemplary Groups

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean (sd)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>We have been trained in methods of student scheduling.</td>
<td>1.462 (1.590)</td>
<td>.354</td>
<td>.724</td>
</tr>
<tr>
<td>Our administrators have helped with guided practice in skills such as conducting meetings and student scheduling.</td>
<td>1.923 (2.008)</td>
<td>1.144</td>
<td>.254</td>
</tr>
<tr>
<td>We have specific guidelines for team members’ behavior at meetings.</td>
<td>1.519 (1.820)</td>
<td>.613</td>
<td>.540</td>
</tr>
<tr>
<td>Faculty members’ opinions were considered when the decision to team was made.</td>
<td>2.058 (2.052)</td>
<td>.355</td>
<td>.723</td>
</tr>
<tr>
<td>Teachers were asked with whom they would like to team before teaming began.</td>
<td>2.115 (1.937)</td>
<td>1.295</td>
<td>.196</td>
</tr>
<tr>
<td>Some teachers on my team collaborated with other teacher on curriculum and methods before teaming was introduced.</td>
<td>2.500 (1.674)</td>
<td>.761</td>
<td>.448</td>
</tr>
<tr>
<td>Faculty members visited with successful teams before teaming began.</td>
<td>2.519 (2.082)</td>
<td>1.481</td>
<td>.140</td>
</tr>
<tr>
<td>Most members of my team have had graduate school training in middle school education.</td>
<td>2.788 (1.486)</td>
<td>.173</td>
<td>.863</td>
</tr>
<tr>
<td>Our principal gave us a schedule for our expected progress and goals as a team.</td>
<td>3.115 (1.885)</td>
<td>1.873</td>
<td>.062</td>
</tr>
<tr>
<td>During at least six months before teaming began we had staff development meetings to prepare for teaming.</td>
<td>3.308 (1.638)</td>
<td>1.276</td>
<td>.203</td>
</tr>
<tr>
<td>Most teachers on my team were eager to try teaming.</td>
<td>3.404 (1.683)</td>
<td>1.347</td>
<td>.179</td>
</tr>
<tr>
<td>Most team members have been experienced teachers at the middle school level.</td>
<td>3.981 (1.180)</td>
<td>.742</td>
<td>.459</td>
</tr>
</tbody>
</table>
The Most Valuable Factors in Team Growth

Factors in five of the six areas investigated--support, team activities, teacher characteristics, school organization, and training--were very valuable to team development according to the teachers surveyed. (For the purpose of this study, a factor is considered very valuable if the mean score given by teachers on exemplary teams is greater than 3.7. Factors considered valuable have scores ranging from 2.52 to 3.70; maximum=5.0.) In many areas, the data support the findings of Plodzik and George (1989) who investigated factors in the growth of teams in New England as reported by principals. The area of teacher characteristics had two factors considered very valuable--middle school experience (which was also considered valuable to novice teams) and willingness to learn new teaching techniques. In the area of school organization only the team leader was considered a very valuable factor, while the departmental system, coordination with teachers not on the team, and coordination across grade levels were acknowledged as valuable (see Table 18).

A large number of items representing the areas of support, team activity, and training were perceived as valuable or very valuable by teachers on exemplary teams, while perceptions of teachers on novice teams were significantly different.
Table 18

Value of Teacher Characteristics, and School Organization Factors Reported Significantly Different by Teachers on Exemplary Teams

<table>
<thead>
<tr>
<th>School Organization:</th>
<th>Mean (sd)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our team leader has facilitated our team's work.</td>
<td>4.173 (1.297)</td>
<td>2.063</td>
<td>.040</td>
</tr>
<tr>
<td>Our school has a departmental system which has operated along with our teams.</td>
<td>3.423 (1.258)</td>
<td>2.769</td>
<td>.007</td>
</tr>
<tr>
<td>Our team has coordinated content with teachers who are not on the team.</td>
<td>3.231 (1.756)</td>
<td>2.839</td>
<td>.005</td>
</tr>
<tr>
<td>We have had a staff member who coordinated grade level activities across teams.</td>
<td>2.577 (1.730)</td>
<td>2.806</td>
<td>.005</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teacher Characteristics:</th>
<th>Mean (sd)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most teachers on our team have been willing to learn new teaching techniques.</td>
<td>4.269 (.759)</td>
<td>3.533</td>
<td>.000</td>
</tr>
</tbody>
</table>

Support Factors Valued by Exemplary Team Members

Support from the administration and community ranked high as an important factor in team development according to these teachers. The mean score for support factors was 3.821. Further, the importance of all but one of the support factors was perceived differently by teachers from expert and novice teams. Only two of the support factors had mean scores given by teachers on exemplary teams less than 3.700, indicating that four of the six support factors perceived differently by novice and exemplary teams were very valuable to the growth of exemplary teams (see Table 19). Factors reported as very valuable include the
principal's appreciation of teaming, graduate training in middle school concepts, meeting with team representatives, and encouragement of field trips, and block scheduling. Teachers from exemplary teams also reported public meetings about teaming as valuable. As reported above, teachers from novice and expert teams agreed that a schedule for team development was somewhat important in team growth.

Table 19
Value of Support Factors as Reported by Teachers on Exemplary Teams

<table>
<thead>
<tr>
<th>Factor</th>
<th>Mean</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our principal liked the concept of teaming.</td>
<td>4.469</td>
<td>2.779</td>
<td>.006</td>
</tr>
<tr>
<td>(sd) .999</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Our team has scheduled students within our designated block of time.</td>
<td>3.365</td>
<td>2.081</td>
<td>.038</td>
</tr>
<tr>
<td>(sd) .412</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Our principal has met regularly with team representative to discuss team decisions.</td>
<td>3.942</td>
<td>3.207</td>
<td>.002</td>
</tr>
<tr>
<td>(sd) .998</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Our principal has graduate training in the needs of middle school students.</td>
<td>3.865</td>
<td>3.064</td>
<td>.002</td>
</tr>
<tr>
<td>(sd) 1.372</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Our principal encouraged team field trips.</td>
<td>3.712</td>
<td>3.134</td>
<td>.002</td>
</tr>
<tr>
<td>(sd) 1.333</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public meetings have been held in our community to explain teaming to parents.</td>
<td>3.288</td>
<td>2.297</td>
<td>.022</td>
</tr>
<tr>
<td>(sd) 1.576</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Team activities valued as important in team development.**

With the benefits of strong administrative and community support, it appears that another important factor in team development is the actual interaction that is a part
of teaming (see Table 20). The mean score of responses of teachers on exemplary teams for the team activity items investigated is 3.623. Teachers from exemplary teams reported six of the eight team activities investigated as very valuable. These included building a strong team identity, sharing methods and strategies, seeing to personal needs of members, planning agendas, going on team outings, and setting goals. Only promoting family activities, and setting guidelines for team member behavior (see Table 17) were considered unimportant.

<table>
<thead>
<tr>
<th>Value of Team Activities as Reported by Members of Exemplary Teams</th>
<th>Mean (sd)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>We have built a strong team identity.</td>
<td>4.500 (.728)</td>
<td>3.348</td>
<td>.001</td>
</tr>
<tr>
<td>In our meetings, we have shared classroom methods and strategies.</td>
<td>4.308 (.829)</td>
<td>3.281</td>
<td>.001</td>
</tr>
<tr>
<td>Our team has devoted time to the personal needs of its members.</td>
<td>4.250 (.860)</td>
<td>3.838</td>
<td>.000</td>
</tr>
<tr>
<td>We have planned our meeting agendas as a team.</td>
<td>4.154 (.916)</td>
<td>4.090</td>
<td>.000</td>
</tr>
<tr>
<td>Most members of our team have enjoyed team outings with students.</td>
<td>3.981 (.960)</td>
<td>3.522</td>
<td>.001</td>
</tr>
<tr>
<td>Our team has set goals periodically.</td>
<td>3.942 (1.074)</td>
<td>3.218</td>
<td>.001</td>
</tr>
<tr>
<td>Our team has promoted family activities with students and parents.</td>
<td>2.327 (1.790)</td>
<td>2.114</td>
<td>.007</td>
</tr>
</tbody>
</table>
Staff development activities important to team development.

Teachers reported eight of twelve of the staff development items on the survey as being valuable or very valuable (see Table 21). Not considered valuable by teachers on both novice and exemplary teams were visits to other teaming schools, and training in scheduling, and conducting meetings (see Table 17). Teachers from exemplary teams reported as very valuable team members' acceptance of personal differences, and staff development programs including explanations of the needs of middle school students, personality types and teaching styles, and teaming practices. They reported as valuable staff development programs explaining the reasons for teaming, how to plan interdisciplinary units, and group processing methods. Beginning staff development programs at least six months before teaming began and continuing the program after is also valuable to both exemplary and novice teams.
Table 21

Staff Development Factors Reported Valuable to Team Development by Teachers on Exemplary Teams

<table>
<thead>
<tr>
<th></th>
<th>Mean (sd)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team members have acknowledged and accepted others' personality differences.</td>
<td>4.365 (.971)</td>
<td>3.041</td>
<td>.003</td>
</tr>
<tr>
<td>Our staff development programs included explanations of the needs and characteristics of middle school students.</td>
<td>4.231 (.877)</td>
<td>3.929</td>
<td>.000</td>
</tr>
<tr>
<td>Our staff development programs included information to help us understand different personalities, learning and teaching styles.</td>
<td>3.942 (1.179)</td>
<td>3.470</td>
<td>.001</td>
</tr>
<tr>
<td>Our staff development program included an explanation of learning and teaching practices.</td>
<td>3.731 (1.285)</td>
<td>3.607</td>
<td>.000</td>
</tr>
<tr>
<td>Our staff development programs included discussion of the reasons for teaming.</td>
<td>3.442 (1.564)</td>
<td>2.730</td>
<td>.007</td>
</tr>
<tr>
<td>After we began teaming, continuing staff development contributed to team progress.</td>
<td>3.365 (1.358)</td>
<td>2.988</td>
<td>.003</td>
</tr>
<tr>
<td>Our staff development programs included information on how to plan interdisciplinary units and coordinate instruction.</td>
<td>3.346 (1.494)</td>
<td>3.679</td>
<td>.000</td>
</tr>
<tr>
<td>Our staff development programs included information on group processing.</td>
<td>3.192 (1.534)</td>
<td>3.913</td>
<td>.000</td>
</tr>
</tbody>
</table>
The fourth research question dealt with differences in exemplary teams. Data gathered during observations of 44 team meetings yielded support for the qualitative data on team activity, and more detailed information on the activities of the exemplary teams. Data for all of the teams tended to verify teachers' reports of the activities of their teams, either through direct observation of the activities or through teachers' discussions of them. In addition, these data revealed interesting variations in the behaviors of the exemplary teams. Of the sixteen teams rated as exemplary, I observed eleven exemplary teams in seven schools. In addition, I used material from an interview with a teacher on a twelfth exemplary team in the eighth school. As a result, the qualitative data represent conditions in 75% of the teams identified as exemplary.

**Discovering Variations of Exemplary Teaming**

Data recorded in team meeting observations and interviews revealed variations among exemplary teams. I recorded observations of team meetings on a form (see Appendix F) designed to classify the activities of the team by domain. The form allows specific comments about each activity characterizing each domain, plus space for general comments. In most cases I also used the back of the form
and other sheets to record team conversations. I attempted to record my perceptions of the context and general tone of the team discussions. In addition, I questioned team members and principals about team activities and recorded visible information such as bulletin board displays, team calendars, and student work displayed in classrooms and halls. I analyzed the data looking for patterns that would illustrate the various similarities and differences among the teams and the schools in which they were located. The qualitative data supported the survey data in showing that these twelve teams participated in several activities in all four domains. However, specific discussions, organization, and general tone of the team meetings varied widely.

Analysis of the qualitative data revealed attitudes and activities that clarify these variations. The first difference I noted in the data was the amount of emphasis on activities in each domain. In some team meetings, most of the discussion centered around planning student activities or awards, discipline, and announcements from the administration. In some team meetings, most of the discussion was concerned with varying old methods to meet new requirements, such as planning field trips or remedial classes for new groupings of students. In others the discussions varied widely from recognition, to discipline, to curriculum.

The second difference I noted was the types of displays
visible in the schools. One group of teams was characterized by neat bulletin boards with numerous photos of students, lists of honor roll students, team calendars, rules and regulations, and administrative announcements. For this group, some student work was displayed in the classrooms. The second group had very little display either of student or team materials. Bulletin boards were largely occupied by traditional items--daily schedules, homework assignments, and menus. Classrooms and halls in the third group were characterized by many displays of student work. Often the work was thematic and it was difficult to characterize it by subject. For example, there was one large display done by a sixth grade class that included drawings representing mathematical concepts in ancient Greek mythology, displayed with on a map of the ancient world. These schools looked crowded, and announcements, lists and photos of students were not prevalent.

The third difference in groups of teams seems to be in the general tone of the team meetings. In one group the tone is very businesslike, with a strict agenda, emphasis on application of rules and administrative announcements. Often the team leader in these groups stood to lead the meeting. In the second group, a significant portion of time was spent discussing frustration with teaming, questioning me about what other teams were doing, and explaining how the team had done things differently in the past. On these
teams there was a definite feeling that the teachers were trying to "do the right thing" and but were confused about what the "right sort of teaming" was. Meetings of the third group were most often characterized by the comment, "I have something I would like for us to think about..." It was often difficult to tell which members were the leaders in this group. Discussions in these meetings varied widely, with little emphasis on student discipline, and a good deal of emphasis on curriculum or method adaptations. Teachers on these teams seemed to frequently brainstorm ideas for activities, programs, and even tactful report card comments.

Examination of these three groups of differences lead me to classify teams in three groups, all of which participated enough in each domain to be classified by the experts as exemplary. The first group--businesslike, emphasizing team identity, and most often discussing discipline and administrative announcements--I have called the Administrative Team. Although they do participate in all domains of teaming, and calendars show curriculum coordination considerations, their primary emphasis is on the business of teaming. The second group--characterized by questions about doing teaming "right"--I have called the Transition Group. Although they also participate in all domains of teaming, it seems that their activities have been altered recently by a change in administrative directives about the activities and organization of the teams. The
third group--characterized by a great deal of reflection and brainstorming--seems to be the most involved in using teaming as a base for curricular development. I have called them the Curriculum-Oriented Teams. In addition to demonstrating attention to different activities, teachers on these teams often showed appreciation for different factors in the development of their teams.

Current literature emphasizes the importance of administrative leadership in setting school priorities. Writers in the field of educational leadership are beginning to explore interactions between leadership styles and priorities and the settings in which they function (Mitchell & Tucker, 1992). Analysis of the similarities and differences among the exemplary teams observed seems to support the contention that administrative priorities are vital to the formation of any culture within a school.

Schools housing these exemplary teams seemed to have three different patterns of team emphasis. Exemplary teams were found at seven of the nine schools with two planning periods daily, and at one with only one daily planning period. At four of the schools, the exemplary teams were Administrative Teams. Principals in these schools emphasized to me the importance of team-building activities, orderly halls and attention to physical plant. Transition Teams are located in two of the schools. In both cases new administrative policies, which did not include teacher
input, had changed the nature of teams which teachers thought had been successful in the past. Curriculum-Oriented teams were located in two of the schools--both in the same school division. In these schools, principals were not particularly visible, but the support of the Division administration in staff development and in preparation of coordinated curriculum was mentioned frequently. The strong influence of administrative priorities is apparent in the specific activities and emphases of the exemplary teams that I will examine below.

**Transition Teams**

In the first group of teams, the common thread is the change in teaming organization and expectations and the perception of principals, one male and one female, as distant, and although generally supportive, unresponsive to teachers' specific concerns. One of these schools is a small rural school serving mostly minority children whose parents work in agriculture or manufacturing. The other is a mid-sized rural school which is in an area that is rapidly becoming a suburb of a nearby city. In these schools, teachers' attitudes toward teaming are not positive. However, honest attempts to honor "the concept" have resulted in some exemplary teams. The emphasis of these teams is on professional collaboration to define for themselves a workable team, and to help each other to survive difficult classroom situations.
A comment which I heard often was, "He supports the teams, but..." usually followed by teachers concerns over an area considered by Erb and Doda (1989) as extremely important--teachers being assigned to teach in areas in which they are certified and feel competent. Several paragraphs in Erb and Doda's writings (1989) are devoted to the importance of asking teachers what subjects they feel competent to teach and to considering in what areas they are certified when making the master schedule. However, teachers on these teams expressed great concern over their teaching assignments. At one school the teachers indicated that they all taught language arts and that they felt "spread too thin". One who formerly taught mathematics is now teaching social studies, in which she does not feel confident. One social studies teacher indicated that if she has to teach language arts next year, she will resign. She has been teaching in that school for many years. These teachers were formerly on a team with four teachers sharing teaching of the core subjects. Because of an increase in the school population, two new teachers were added and they were split into two three teacher teams. At the other school, the seventh grade, which was formerly one team with about 140 students and five teachers was divided into two teams and an enclosed classroom. One team has two teachers who are both certified in history. The other has a teacher certified in science and one in mathematics. The teacher
who is assigned to the closed classroom is certified in Language Arts. These teachers feel that they functioned much more effectively as one large team and that they are not qualified to teach in their current assignments. They are sure that their team was an effective size before and that the school board's decision that they be divided was arbitrary and unnecessary. They noted that they had spoken against the decision at a school board meeting but that they were "ignored".

In both schools, groups broken into smaller teams have "recombined" and have joint team meetings to compensate for what they see as problems caused by teaming. They are diligent in their efforts to abide by the teaming concept, keeping minutes, agendas, carrying out administrative directives, and including all members in their deliberations, taking students on team outings together, and having joint recognition events, but they definitely want to be considered members of the larger teams that they have formed.

Teachers on both of these teams feel that a lack of training for teaming has hampered their teams' growth. In one case, teachers were frustrated that their staff development program included visits to schools far different from their own, and that division money could have been better spend on more classroom equipment. Teachers on these teams share their own opinions and research on teaming and
other professional practices in their meetings in an attempt to build a team paradigm that fits their situation. This has resulted in much sharing activity characteristic of Domain 3. Teaching out of their area of expertise has forced them to discuss and coordinate curriculum. The history teacher required to teach mathematics quite naturally seeks information from the math teacher and adds interesting historical facts into her teaching. In a very short visit to a science classroom taught by a history major, I observed her using information from both history and poetry in the science lesson. She is comfortable using "some material from my own field" in her daily lessons.

Although these teams show progress in coordinating curriculum, the cost to teacher satisfaction and self-esteem is possibly quite high.

These teams emphasize to a lesser extent attention to students. Although much less of the observed time was spent on student concerns than on how to handle curriculum, care for students was evident. In both of these schools preparation for the literacy passport examination was an important team concept with special help classes arranged for students by the team in both areas tested. Both teams mentioned recognition events for good achievement and field trips. On one team, concern for student health because of poor hygiene was mentioned as a reason to plan some sort of homeroom activity to correct the situation. On the other,
in a conference with a student's concerned relative, teachers showed great concern for the welfare of the student and knowledge about student activity. A teacher commented, "I know L's self-esteem is low. I have put her in a group with S and D instead of T and M. T and M were so mean to her. S and D are really nice kids and are very kind to her." There was no mention in these team meetings of discipline.

Teachers on these teams credit their own hard work for the success of their teams. They feel that they have made their teams work because of their need to rely on each other. However, primarily because many of them are teaching out of their field, they are frustrated with teaming and do not feel that they are exemplary teams. They know only that they have done what is necessary to survive in the classroom. The main benefit of teaming in these schools is that teachers help other teachers perform better in the classroom.

Administrative Teams

Emphasis in the next group of schools seems to be administrative, stressing team organization and pupil discipline. The emphasis in the schools in which these teams are located seems to be on positive school climate and order, with the team acting to aid the administration with discipline and announcements. The one exemplary team from the group of schools with only one planning period fits into
this category. Two are large rural schools, while another is a large suburban school, and the fourth is a small inner-city school. Two of the principals are women and two are men. All of these schools have relatively new or recently refurbished, immaculate physical plants, with many school spirit items, green plants, photos of students, trophies, and examples of student art work displayed.

These schools are examples of the type of school climate advised by the experts—orderly, clean, with an emphasis on student recognition and high standards. Edmonds stressed the importance of school climate in his work with New York city schools and defined it as an orderly and businesslike atmosphere (1984, Fall). Moos and Trickett (1987) further note that favorable school climate includes positive, supportive personal relationships, avenues for personal growth, and an orderly system of change. He further notes that such a positive climate brings improvement in morale, absenteeism, and the drop-out rate.

The exemplary teams I observed in these schools kept thorough minutes and agendas to assist in communication with the administration. They had strong team leaders who generally conducted meetings at which administrative announcements were the first priority. Team meetings resembled standard faculty meetings in many ways. In one group a guidance counselor, who was considered a "quasi-administrator" attended the team meeting I observed. The
team in the school with only one planning period met two times per week during common planning time. The team in one of the other schools met only three days per week, reserving the other team planning times for hall and cafeteria monitoring. (They indicated that they had voted to do this instead of team meetings for this year.) The principal in the other school indicated to me that teams in his school met "when they need to meet" even though time is available daily for team meetings. In three of these schools, students of different ability levels are on different teams. None of the teams discussed here had the highest ability level students. In these schools, teams seem to be in control, and several other teachers told me that they did not feel like "real people". As an example, members of one team were visibly irritated that the librarian was planning to have some of their students miss class to plan a Black history project. One member went from the team meeting to inform the librarian that they would not allow the students to miss their classes. While she was gone, the others composed a note informing several specialty teachers that team students would miss their classes for a team recognition party. They felt that students should not miss core classes for this party. When discussing how to write this note, one member said, "Do not ask them. Tell them." These teams also do not include substitutes in their meetings, although part of one discussion was about the
trouble one substitute, who was in the adjacent room by
himself at the time, was having with team students.

In two of the teams observed in this group, discipline
problems dominated the discussion. In both situations
numerous detention, in-team suspensions, in-school
suspensions, out-of-school suspensions, or red-lines (when a
student is not allowed to go to bathroom, locker or lunch
without an escort) were assigned, even in cases where the
student already had huge "debts" of unserved discipline
time. In another, three students who had been in the halls
instead of being in class were severely reprimanded. Noting
that the team had "a visitor" the principal took over the
discipline of these students. In one of these schools
teachers admit to a higher drop-out rate than they would
like, but blame it on parent apathy. In the inner-city
school, however, the principal noted that the drop-out rate
had declined drastically since the introduction of the
middle school concept. In another, teachers expressed the
opinion that a student with a doctor's diagnosis of
Attention Deficit Disorder was simply "spoiled" and
"manipulated his parents". Bulletin boards in the halls of
these schools, however, were filled with photos of team
members and team outings, showing positive concern for
students on the teams. In the team meeting in the school
with only one planning period, less discipline was discussed
and concern was expressed for helping a student with make-
up work. One teacher on this team had given out awards history work to students that morning.

Since most of the team discussion time in two of the team meetings I observed was spent on discipline and announcements, there was little time for sharing professional information and coordinating curriculum. However, in all of the schools, team calendars with tests, field trips, and projects, and mini-courses taught by two or more teaming teachers noted were prominently displayed. Preparation for the passport literacy testing was the only curricular matter discussed, and even these discussions were mostly of an organizational nature—when and where to have remedial work, rather than what type of remediation to offer.

Evidence of shared growth and curriculum coordination was more evident on the team with only one daily planning period. The principal at this school has an interesting form of communication with the faculty. She copies articles of professional interest and sends them to team meetings where they are discussed. Teams then respond, sometimes by finding articles whose authors disagree and copying them and sending them to the principal. Teachers on this team are frustrated by an "edict from the state or somewhere" that will require them to use the whole language approach next year and devise thematic units to include curriculum for the entire year. They feel that they do not have the training
or time to do these units. They will be spending one or two weeks planning in the summer. Because they have been an interdisciplinary team for many years, they do have some experience in planning and teaching interdisciplinary units, and seem to be generally aware of what other teachers are teaching. Two teachers share the science units, one teaching a plant biology section while the other teaches an animal biology section. After the units are completed, they switch students and teach the same units again. This is not an attempt to coordinate curriculum. It is an effort to save time planning lessons. Although these teachers complained about the thematic unit requirement, they began to brainstorm ideas. By the end of the session, they had developed a plan for a basic theme: six weeks instruction to be spent on history, biology, political science, and literature of each of the six inhabited continents.

Although all of these teams showed some expertise and activity in each of the four domains, their major function seemed to be to carry out administrative requirements and to act as a disciplinary force. The major benefit of the team seemed to handle administrative activities for smaller groups of students in large schools. As Lipsitz (1982) suggested, this can offset the feeling of isolation and loneliness often experienced in large schools.

Teachers on these teams are mostly guided by administrative directives, so that the administrators
involved could seemingly insure team growth by providing specific activities. In some cases, such as in the school where thematic units have been mandated for next year, the principal can control team growth in this manner.

Curriculum-oriented Teams

There are six teams from two schools in the final group of exemplary teams. These teams' meetings are generally informal and team discussions seem to move from activities in one domain to another frequently. It is interesting that both of these schools, although they serve distinctly different populations, are in the same school division. One of the schools serves a suburban neighborhood with about one third of the students on free or reduced lunch. Students in this school are grouped onto teams according to their ability. The other school serves children from all over the district whose parents enrolled them in the school because of its special emphasis on academic progress and participation. One principal is a female, the other a male. Neither principal seemed highly involved in daily school activity. Teachers viewed the principals mainly as part of a central administration which is very supportive, provided a strong staff development program before teaming and still provides on-going support. Although minutes and agendas are turned in to be read weekly, the formality of the team meetings varied from a structured meeting, to one experienced teacher helping a
less experienced teacher, to two to six teachers collaborating equally on projects. Teams varied in size from two to six teachers. All teachers participated, and communications seemed clear.

A balance in the amount of time on activities in each of the four domains was clear. Attention to students was evidenced by discussion of recognition events and concern for students at risk of failing. Parent conferences were planned for the at risk students. Discipline was an infrequent topic except that one team was planning to initiate misconduct forms to be included in interim reports. I observed one classroom in which a teacher had assigned a student who had been disruptive the day before to teach the class. She had also invited the father to attend. The father seemed to appreciate her efforts. After his teaching experience, the student returned to his desk. He was not disruptive for the rest of the period. This method had been created in team meeting. Two teachers on a sixth grade team have their students write letters to their parents every Friday telling of their activities, achievements, and of any misconduct in class.

There was professional sharing on these teams as well. On one team the teachers indicated to me that when they first came to the school they were inexperienced, and the teachers on their teams helped them to adjust. Subsequently, when they came on to their present team, they
brought practices from their other team and introduced them to the other teachers. On another team the experienced teacher acted as a mentor for the new teacher, helping him to complete forms, plan lessons, and generally to understand "the unique characteristics of sixth graders". Teachers on one of the sixth grade teams and one of the seventh grade teams discussed the survey and completed it together while I observed. In the process, they shared many opinions and experiences indicating that they were generally very pleased with the results of teaming, had enjoyed the experiences that brought progress to their team, and particularly appreciated the contact with other adults during the school day. Two teachers on a sixth grade team explained how they planned evening meetings for parents to help them help their children with study skills, science fair projects, and writing skills. The meetings were very popular. Teachers on most of the teams noted that much of the money for team activities comes from their pockets because team funds are very small from the school budget.

Since there was less emphasis on the organizational matters of teaming, attention to coordination of instruction was most evident on these teams. Curriculum discussions were most frequent on the two-teacher sixth grade teams, but was included in all team meetings by references to team calendars, bulletin boards, and in discussions about having team speakers to address certain themes. Several teams
discussed using "flex-time" during the core time to offset the effects of several assemblies and speakers during a short period of time. In an almost casual way, teachers in several of the meetings asked other teachers if they might "keep [students] just a little longer tomorrow so that we can finish the project". Reading was taught across the curriculum in both of these schools. Several teams had community service projects such as sending students to read to children at the elementary schools. Although they said that they were using a coordinated curriculum, teachers on one eighth grade team did indicate that they preferred the "old single discipline" method. One teacher explained that teachers and district supervisors had spend a great deal of time in the summer before teaming was introduced designing coordinated curriculum for teachers to use based on the current textbooks. She expressed some concern that when new textbooks were purchased teachers might not be able to use this valuable resource because "money might not be available to update it".

All of the factions involved--teachers, students, and administrators--in these schools seemed to be pleased with the results of teaming and seemed to benefit from it. Alexander and George (1981) emphasized the importance of a strong commitment at the district level to the middle school concept before it was introduced. It seems that this sort of strong commitment, especially to teaming, has resulted in
exemplary teams in this district. Teachers repeatedly emphasized their appreciation for their training for teaming, whether it was from district staff development programs or from experienced teachers on their teams.

**Quantitative Support for Three Categories of Exemplary Teams**

There is limited quantitative support for both the different focus of the groups of exemplary teams as demonstrated in activities and experiences perceived as valuable to team development. In most cases, one group shows statistically significant differences from the other two. However, the configuration of these pairs changes for different variables and subscales. Although the sample is quite small, the data in part support the theory of three different forms of exemplary teams.

**Team Activities Significantly Different by Groups**

There is some quantitative support for differences in activities of exemplary teams in the survey data (see Table 22). Differences in mean scores for activities on three of the four domains are significant. As might be expected, since the Organization Domain is the most common one with high percentages of expertise, there is little difference in these activities. On the second domain and third domains, Attention to Students and Shared Responsibility and Growth, the Administrative and Curriculum-oriented groups share significantly higher activity scores than the Transition
group. Individual items rated high in this area for these two groups include discussing ways to make communication better, planning training activities, having uniform discipline policies, and deciding as a team how to spend team funds. On the Coordination of Curriculum domain, however, the Administrative and Transition groups share lower scores for activities. The Curriculum-oriented group had significantly higher scores on planning thematic units. Both Curriculum-oriented and Transition groups scored significantly higher than Administrative groups on planning for overlap in instruction.
### Table 22
Mean Domain Scores by Group

<table>
<thead>
<tr>
<th>Domain</th>
<th>Transition</th>
<th>Administrative</th>
<th>Curriculum-Oriented</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=8</td>
<td>N=25</td>
<td>N=19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1 Organization</td>
<td>14.875 (0.991)</td>
<td>14.880 (1.453)</td>
<td>15.053 (1.747)</td>
<td>.079</td>
<td>.924</td>
</tr>
<tr>
<td>D2 Attention to Students</td>
<td>14.875 (0.991)</td>
<td>17.680 (2.657)</td>
<td>17.947 (2.013)</td>
<td>5.751</td>
<td>.006</td>
</tr>
<tr>
<td>D3 Shared Res. and Growth</td>
<td>13.000 (1.195)</td>
<td>14.880 (1.764)</td>
<td>14.789 (2.250)</td>
<td>3.209</td>
<td>.049</td>
</tr>
<tr>
<td>D4 Curriculum Coordination</td>
<td>15.625 (1.061)</td>
<td>16.440 (2.770)</td>
<td>18.474 (2.010)</td>
<td>5.927</td>
<td>.005</td>
</tr>
</tbody>
</table>

**Underlining indicates scores not significantly different-Tukey HSD>.07.**

There is no significant difference among the scores of the four groups for the first domain. However, one of the basic differences in the qualitative data for these groups is that some do not have daily team meetings, even when time is allotted. Teachers were asked on the survey how often "regular" meetings were held. From the qualitative data, I know that at least some responded "very frequently" when their meetings were "regular" but not daily. The quantitative data for this domain cannot either confirm or deny the notion of division into these groups.
Formative Experiences of Groups

There is some statistical evidence that significant differences exist in some areas of demographic data, work environment, and factors important to team development among the three different forms of exemplary teams.

Demographic differences among groups.

Although there is no statistical difference in certification, number of subjects taught, experience, or educational level between teachers in these groups, the data demonstrate a trend toward such differences. One group in particular, the Transitional group, appears to have fewer secondary certified teachers, more subjects to teach, less education, and less experience teaching at the middle school level.

Although all of the exemplary teams in the study have a large percentage of teachers with middle school certification, most of them also have either teachers with dual certifications, or some teachers with secondary certification. None of the teachers in the Transitional group have secondary certification (see Table 23). Teachers in this group were particularly concerned about having proper certification. Some indicated to me that they felt that the middle school certification was added to their elementary certification for the convenience of the school division.
Table 23
Certification and Number of Subjects Taught by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Percentage of Teachers with Elementary Cert.</th>
<th>Percentage of Teachers with Middle Cert.</th>
<th>Percentage of Teachers with Secondary Cert.</th>
<th>Total Subjects Taught Mean (sd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transitional</td>
<td>75%</td>
<td>100%</td>
<td>0%</td>
<td>3.000 (0.000)</td>
</tr>
<tr>
<td>N=8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative</td>
<td>40%</td>
<td>64%</td>
<td>36%</td>
<td>1.520 (1.085)</td>
</tr>
<tr>
<td>N=25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curriculum</td>
<td>42%</td>
<td>89%</td>
<td>37%</td>
<td>2.368 (1.065)</td>
</tr>
<tr>
<td>N=19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

One of the greatest concerns of the Transitional group was the necessity to teach a variety of subjects. It appears from the data (see Table 24) that the trend is for teachers in this group to teach more subjects than teachers in the other groups. The data do not reveal whether any of the teachers in the study are certified to teach the subjects which they are teaching.

Although a small percentage of all of the teachers on the exemplary teams have higher degrees, there is a trend toward less preparation for the teachers in the Transitional group. Figure 13 shows the relative percentages of teachers at each educational level in each group. The Transitional group is the only group in which no teachers have advanced degrees. Distance from university facilities might be cited as a reason for teachers from these schools not seeking...
higher degrees. However, one of the schools in the Transitional group is within thirty miles of a university offering graduate courses in education.

The same trend toward less preparation can be seen in the experience of the Transitional group in Figure 14. The 75% of teachers in this group with only one to five years middle school experience is far higher than the percentage in any other group. The other groups have more balance, with teachers at all levels of experience.
Figure 13: Percentage of teachers on identified exemplary teams at each educational level by group.
KEY:

GROUP

☐ TRANSITIONAL

☒ ADMINISTRATIVE

☐ ☑ CURRICULUM-ORIENTED

Figure 14: Percentage of teachers on identified exemplary teams at each level of experience by group.
Planning time use by groups.

There is a distinct pattern in planning time use by groups. Since reports made by teachers of planning time use could only be interpreted as to relative amount of time given to each activity, Figure 15 displays which activities were "sometimes", "frequently", or "never" done during team planning time. It is interesting to note that in the "other" category, several responses from the Administrative and Transitional groups indicated that reading announcements, filling out forms, and other administrative duties often were done during team planning time. A main focus in all groups was discussing student problems and solutions. In the Transitional and Administrative groups, discussion of administrative matters was frequent. In Curriculum-oriented teams, however, curriculum was an important focus.
<table>
<thead>
<tr>
<th>Team/Group</th>
<th>Personal Curriculum</th>
<th>Student Planning</th>
<th>Coordination</th>
<th>Schedule</th>
<th>Regroup</th>
<th>Discuss</th>
<th>Plan</th>
<th>Student</th>
<th>Solution</th>
<th>Events</th>
<th>Parent</th>
<th>Admin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transitional</td>
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<td>Administrative</td>
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<tr>
<td>Curriculum-Oriented</td>
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<tr>
<td>3281</td>
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</tr>
</tbody>
</table>

Key:

*Frequent participation in this activity
*Some participation in this activity
No participation in this activity recorded

Figure 15: Relative use of planning time by groups.
Work environment scores by group.

Statistical information from the 22 members of the exemplary teams who responded to the modified Work Environment Scale is insufficient to show significant differences among the three groups of exemplary teams. Some trends appear, however, in the data in Table 24. The Curriculum-oriented group gave their school environment high scores on the Relationship and System Maintenance and System Change subscales. They were also lowest in the Autonomy dimension. These responses may reflect the strong part the division administration takes in supporting teaming. Likewise the high score on the Autonomy dimension rated by the Administrative teams, may reflect that in many ways they act as administrative units, handling discipline and scheduling among themselves. The high score on physical comfort for these schools reflects administrations' and teams' attention to physical plant and the resulting immaculate buildings. It is also consistent with the character of the Transition groups that their score for the Involvement dimension is high, since they report that they spend many hours preparing lessons.
Table 24

<table>
<thead>
<tr>
<th></th>
<th>Transition Mean</th>
<th>Administrative Mean</th>
<th>Curriculum Mean</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(sd)</td>
<td>(sd)</td>
<td>(sd)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N=3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>6.333 (.289)</td>
<td>5.688 (2.108)</td>
<td>6.795 (.900)</td>
<td>1.820</td>
<td>.150</td>
</tr>
<tr>
<td>Involvement</td>
<td>3.500 (.433)</td>
<td>3.094 (.823)</td>
<td>3.447 (.440)</td>
<td>1.037</td>
<td>.374</td>
</tr>
<tr>
<td>Supervisor Supp</td>
<td>2.833 (.144)</td>
<td>2.594 (1.302)</td>
<td>3.318 (.623)</td>
<td>1.512</td>
<td>.246</td>
</tr>
<tr>
<td>Personal Growth</td>
<td>4.083 (1.665)</td>
<td>5.031 (.995)</td>
<td>4.250 (1.401)</td>
<td>.696</td>
<td>.557</td>
</tr>
<tr>
<td>Autonomy</td>
<td>3.083 (.289)</td>
<td>3.250 (.535)</td>
<td>2.932 (.799)</td>
<td>.572</td>
<td>.602</td>
</tr>
<tr>
<td>Work Pressure</td>
<td>1.000 (1.521)</td>
<td>1.781 (.619)</td>
<td>1.318 (.743)</td>
<td>1.254</td>
<td>.308</td>
</tr>
<tr>
<td>System Maint.</td>
<td>6.883 (1.041)</td>
<td>8.613 (2.831)</td>
<td>8.909 (2.274)</td>
<td>1.784</td>
<td>.164</td>
</tr>
<tr>
<td>Innovation</td>
<td>2.750 (.866)</td>
<td>2.938 (1.075)</td>
<td>3.659 (1.286)</td>
<td>1.222</td>
<td>.317</td>
</tr>
<tr>
<td>Clarity</td>
<td>2.667 (.144)</td>
<td>3.125 (.824)</td>
<td>3.386 (.626)</td>
<td>1.395</td>
<td>.272</td>
</tr>
<tr>
<td>Physical Comfort</td>
<td>1.417 (.629)</td>
<td>2.750 (1.044)</td>
<td>1.864 (.918)</td>
<td>3.036</td>
<td>.072</td>
</tr>
</tbody>
</table>

**Differences Among Groups in Perceptions of Valuable Factors**

The quantitative data, although not a large enough sample to support significant differences in perceptions of valuable factors in team development by the Transitional, Administrative, and Curriculum-oriented groups, show some trends that should invite further investigation. The data show significant statistical differences on how members of the three different groups value their experiences on 17 of the 38 items surveyed (see Table 25).
Table 25
Selected Experiences Valued by Groups Which Show Significant Differences (Tukey HSD).05

<table>
<thead>
<tr>
<th>Experience</th>
<th>Transitional</th>
<th>Administrative</th>
<th>Curriculum-oriented</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaboration before teaming</td>
<td>3.500</td>
<td>2.680</td>
<td>1.842</td>
<td>3.313</td>
<td>.045</td>
</tr>
<tr>
<td></td>
<td>(1.756)</td>
<td>(1.492)</td>
<td>(1.951)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eagerness to try teaming</td>
<td>2.875</td>
<td>4.000</td>
<td>2.842</td>
<td>3.292</td>
<td>.046</td>
</tr>
<tr>
<td></td>
<td>(.641)</td>
<td>(1.354)</td>
<td>(2.155)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Departmental system</td>
<td>2.250</td>
<td>3.080</td>
<td>4.368</td>
<td>15.229</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>(.139)</td>
<td>(.909)</td>
<td>(.955)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordination across grade level</td>
<td>3.000</td>
<td>1.960</td>
<td>3.211</td>
<td>3.393</td>
<td>.042</td>
</tr>
<tr>
<td></td>
<td>(1.309)</td>
<td>(1.925)</td>
<td>(1.357)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asked with whom to team</td>
<td>2.750</td>
<td>2.960</td>
<td>.737</td>
<td>10.440</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>(1.632)</td>
<td>(1.670)</td>
<td>(1.558)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal trained in middle school</td>
<td>1.875</td>
<td>4.150</td>
<td>4.316</td>
<td>15.839</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>(2.031)</td>
<td>(.843)</td>
<td>(.871)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal allows teams to schedule</td>
<td>2.250</td>
<td>2.720</td>
<td>4.000</td>
<td>3.876</td>
<td>.027</td>
</tr>
<tr>
<td></td>
<td>(2.053)</td>
<td>(1.860)</td>
<td>(1.563)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal meets with team representatives</td>
<td>4.125</td>
<td>3.560</td>
<td>4.368</td>
<td>4.156</td>
<td>.022</td>
</tr>
<tr>
<td></td>
<td>(.855)</td>
<td>(.961)</td>
<td>(.955)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Six months staff devel. before teaming</td>
<td>2.250</td>
<td>3.800</td>
<td>3.105</td>
<td>3.189</td>
<td>.050</td>
</tr>
<tr>
<td></td>
<td>(1.389)</td>
<td>(1.118)</td>
<td>(2.079)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff devel. in group processing</td>
<td>2.500</td>
<td>2.270</td>
<td>4.105</td>
<td>6.523</td>
<td>.003</td>
</tr>
<tr>
<td></td>
<td>(2.000)</td>
<td>(1.458)</td>
<td>(.937)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff development in planning thematic units</td>
<td>2.500</td>
<td>3.080</td>
<td>4.053</td>
<td>4.299</td>
<td>.019</td>
</tr>
<tr>
<td></td>
<td>(1.414)</td>
<td>(1.187)</td>
<td>(1.649)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuing staff development</td>
<td>3.875</td>
<td>2.600</td>
<td>4.158</td>
<td>10.735</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>(.835)</td>
<td>(1.354)</td>
<td>(.958)</td>
<td></td>
<td></td>
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<tr>
<td>Staff development on personality types</td>
<td>4.375</td>
<td>4.000</td>
<td>4.842</td>
<td>4.643</td>
<td>.014</td>
</tr>
<tr>
<td></td>
<td>(.916)</td>
<td>(1.118)</td>
<td>(.501)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team sets goals</td>
<td>4.000</td>
<td>3.560</td>
<td>4.421</td>
<td>3.876</td>
<td>.027</td>
</tr>
<tr>
<td></td>
<td>(.535)</td>
<td>(1.297)</td>
<td>(.692)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team makes agendas</td>
<td>3.625</td>
<td>3.800</td>
<td>4.842</td>
<td>12.394</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>(.916)</td>
<td>(.816)</td>
<td>(.501)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team provides for pers. needs of members</td>
<td>4.125</td>
<td>4.000</td>
<td>4.632</td>
<td>3.277</td>
<td>.046</td>
</tr>
<tr>
<td></td>
<td>(.641)</td>
<td>(.913)</td>
<td>(.761)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team shares strategies</td>
<td>4.500</td>
<td>3.640</td>
<td>4.042</td>
<td>11.478</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>(.758)</td>
<td>(.800)</td>
<td>(.501)</td>
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</tbody>
</table>
Although no one of the six theoretical divisions of experience outlined in Figure 25 shows significant differences among groups, there are differences enough individual items to point to some trends. It appears, for example, that the Administrative group most appreciated events which took place before teaming began--previous collaborative experience, participating in decisions about teaming, teachers' eagerness to try teaming, the principals' training in middle school concepts, and a long training period. The Transitional group appears to have most appreciated their own input and characteristics--previous collaboration, coordination across grade levels, representation to the administration, decision-making factors, making goals and sharing strategies, and continuing staff development programs. The Curriculum-oriented group gave high scores to most of the activities mentioned as favored by the other groups. In addition, they found several additional factors helpful in developing their teams. Included were the departmental system, training in scheduling, group processing, planning thematic units, and planning goals and agendas as a group. They also put high value on meeting the personal needs of their members.
Summary

Using the data I gathered with surveys, I have been able to identify 16 teams as exemplary. These teams are active on all four of the domains of teaming. They are located in eight schools representing several different economic and cultural groups throughout Virginia. Using additional survey information, I have been able to determine that the general work environment as reported by the teachers on these exemplary teams is more positive than that reported by teachers on novice teams. Teachers on exemplary teams seem to value most highly team interaction such as team identity building, sharing strategies, planning agendas, and taking team outings. Also valued are administrative support such as the principals' appreciation of teaming, allowing teams to schedule students, and meeting with team representatives. Staff development such as training in group processing and team practices were also valued by these teachers.

In addition to the information yielded by the surveys, interview and observation data seem to indicate three different orientations for exemplary teams. Significant statistical difference from the survey data on the activities of the teams in these three groups supports the notion of differences on three of the four domains. It appears that the energy of one group goes largely to administrative activities, while the energy of a second
group goes to adjusting to mid-course changes in teaming practice. The third group, although giving attention to students and organization, seems to focus more energy on reflecting about curriculum and instructional practice. Although the sample is too small to show substantial statistical differences on many major factors, these orientations are reflected in somewhat different perceptions of the work environment and factors effecting the growth of the teams. Perceptions of the value of nearly half of the items surveyed differed among these groups. It is possible that high value put on factors from different subscales by administrators or team members have effected team development, resulting in these three branches of exemplary teaming.
CHAPTER 5

Interdisciplinary team organization is one important aspect of the middle school movement providing small groups for students and increased collaboration for teachers. Although research on the effects of these teams on teachers and students yields mixed results, it is assumed that teaming has a positive effect on them and is, therefore, a desirable organizational form. One of the problems with inconsistent results in research is the wide variety of teaming practiced, and the numerous suggestions for elements which, when experienced in team formation, can help team development.

The purpose of this study is to identify common elements in the experience of exemplary interdisciplinary teams, to assess their value in team progress as perceived by teachers, to determine to what degree the results support current theory, and to identify variations in exemplary team practices.

Summary of Findings

The first research question asks where in Virginia are interdisciplinary teams located. I identified a sample of ten schools including such teams. Included were small, medium, and large schools representing a wide variety of socio-economic and cultural groups throughout the state.
The second research question concerns activities practiced by these teams, and in light of these activities, which teams are considered exemplary. Sixteen teams in eight schools were identified as exemplary because they were active on all four domains of Erb and Doda's (1989) model. In the Organizational domain, most members of these teams reported frequent meetings with written agendas and minutes, follow-through on team decisions, and full participation and dispute resolution in team meetings. On the second domain, team members reported that their teams planned cooperatively for parent and student conferences, cooperatively sought solutions for student problems, and planned for team recognition of student achievements and regrouping students for instructional purposes, and for team outings. On Domain 3, teachers reported cooperative planning for use of team funds, having one member know the "total picture" for a share of students, discussing solutions to general classroom problems and sharing professional information in meetings, and having one member represent the team in parent communications. On the fourth domain, many teachers reported that they were aware of what was taught in other subject areas, cooperated in basic skills instruction, discussed curriculum in regular meetings, planned and taught interdisciplinary units, and coordinated instruction and new instructional techniques to provide for overlap for reinforcement.
The focus of the third research question is the factors that accompany the development of exemplary teams and the effect of these factors on team growth. Exemplary teams have a wide variety of demographic arrangements ranging from two to six teachers with 30 to 150 students either of homogeneous ability grouping or from a cross-section of student abilities within the school. Most of the teachers have a bachelor's degree and hold elementary and middle school certification. Teachers on these teams generally taught one subject or three subjects, one of which was reading. Team members reported that most team planning time was generally spent performing administrative duties, coordinating curriculum, and discussing solutions to student problems and discipline. Members of these teams perceive their whole school environment to be positive, including high teacher work involvement, good supervisory support, and support for innovation and autonomy. They also reported clear understanding of staff roles and expectations. Figure 16 includes the seventeen activities teachers rated as most valuable to their teams' development in descending order of importance.
We have built a strong team identity.

Our principal liked the concept of teaming.

Our team has scheduled students within our designated block of time.

Team members have acknowledged and accepted others' personality differences.

In our meetings, we have shared classroom methods and strategies.

Most teachers on our team have been willing to learn new teaching techniques.

Our staff development programs included explanations of the needs and characteristics of middle school students.

Our team has devoted time to the personal needs of its members.

We have planned our meeting agendas as a team.

Most members of our team have enjoyed team outings with students.

Our principal has met regularly with team representatives to discuss team decisions.

Our staff development programs included information to help us understand different personalities, learning and teaching styles.

Our team has set goals periodically.

Most team members have been experienced teachers at the middle school level.

Our principal has had graduate training in the needs of middle school students.

Our principal encouraged team field trips.

Our staff development program included an explanation of team practices.

**Figure 16:** Items reported as "very valuable" or "extremely valuable" to team development by members of exemplary teams.
The fourth research question concerns differences in activity patterns among exemplary teams. Qualitative and quantitative data on team activities reveal three important sub-groups of exemplary teams. The Administrative Group is largely concerned with organization and administration, such as scheduling and disciplining students, while Curriculum-oriented teams more often discussed coordination of curriculum. The third group, including characteristics of both of the others, is in transition because of changes in administrative directives or wavering administrative leadership concerning team practices. Teachers on the Administrative teams credit their teams' growth to their administrators' direction and support, while those on the Curriculum-oriented teams credit their growth to strong support and participation by division-level personnel. Transition team members credit their teams' growth to their own efforts to build team purpose and identity.

The fifth research question asks to what extent the data support the theorists' notions about elements necessary for strong team development. The results of the study show that members of exemplary teams support theorists' views on many, but not on all, items suggested as contributors to strong teams. It seems that two daily planning periods is helpful in team development. Teachers agree with theorists that teacher attitudes, administrative support, and staff development programs highlighting psychology and teaming
practices were important. Also important were actual team activities in identity building, taking care of team members, and cooperative planning. There is some support for the theory of hierarchial development. In addition, the total-school work environment, including supervisor support for teachers' new ideas, and clear roles, and full involvement in work was critically important to team growth.

Conclusions

1. Although all of the activities listed as indicative of expertise on each domain (see Figure 1) are included in the literature, significant ones were not frequently practiced by teams in this sample. Uniform team discipline, use of specific scheduling guidelines, peer observation, teacher input into staff development, and coordination with non-team teachers were not frequently practiced by exemplary teams.

2. Although survey data can explain much of team practice and experience, richer data yielding more precise and diverse descriptions of exemplary teams resulted from short case studies. Case study methods were useful in describing numerous contexts within which the teams were formed and the resulting differences in team practices.

3. Although analysis of qualitative data indicates the division of teams into three groups, it is probable that there are really only two groups—the Administrative and the Curriculum-oriented—whose development is dependent upon the
focus of the administration. Caught between the two others, Transition teams will probably evolve into one of the other types if administrators stabilize support and indicate clear direction for team development.

4. Teachers agree that attitudes, administrative support, and staff development programs on teaming theory and psychology are important to team development. Actual team activities in team building and member support, and two daily planning periods are also important. However, there is no textbook approach listing factors which assure exemplary team development in all of the various contexts in which teams function.

A Model

The last research question dealt with constructing a model of interdisciplinary team development. I used factor analysis to create subscales of statistically related items. After determining that these subscales were logically cohesive, I used them as predictor (perception of value and work environment) variables related to the criterion (team activity) variable in multiple regression analysis. This model organizes the predictive factors into two significant subscales representing appreciation of individuality within the team structure, and perceptions of the whole-school work environment. These factors are related to the number and frequency of activities listed in Figure 1 which the teams practice and which were used to identify exemplary teams.
Subscales of Valuable Experience Factors

The first subscale, which I have called Appreciation of Individuality Within the Team Structure, consists of ten items (see Table 26) whose scores correlated. While four of the items represent strong cooperative team activity, six represent appreciation for individuality. Mean scores range from 3.901 to 3.379, all representing perceptions of these experiences as valuable to very valuable. The mean for the subscale is 26.613 (sd=9.534, maximum score=50). The distribution is negatively skewed (-1.046), implying a concentration of high values.

Table 26

Appreciation of Individuality Within the Team Structure
Subscale

<table>
<thead>
<tr>
<th>Item</th>
<th>Rotated Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our team leader has facilitated our team's work.</td>
<td>.593</td>
</tr>
<tr>
<td>Our team has set goals periodically.</td>
<td>.600</td>
</tr>
<tr>
<td>We have built a strong team identity.</td>
<td>.576</td>
</tr>
<tr>
<td>We have planned our meeting agendas as a team.</td>
<td>.549</td>
</tr>
<tr>
<td>In our meetings, we have shared classroom methods and strategies.</td>
<td>.746</td>
</tr>
<tr>
<td>Most teachers on our team have been willing to learn new techniques.</td>
<td>.736</td>
</tr>
<tr>
<td>Team members have acknowledged and accepted others' personality differences.</td>
<td>.701</td>
</tr>
<tr>
<td>Our staff development programs included explanations of the needs and characteristics of middle school students.</td>
<td>.668</td>
</tr>
<tr>
<td>Our team has devoted time to the personal needs of its members.</td>
<td>.625</td>
</tr>
<tr>
<td>Our staff development programs included information to help us understand different personalities, learning and teaching styles.</td>
<td>.608</td>
</tr>
</tbody>
</table>
MacIver (1990) stresses the importance of preparing the faculty for teaming and creating the correct atmosphere of acceptance before initiating the change from isolation. The second subscale (see Table 27), which I have named Organizational Pre-conditions, addresses this issue. Means of the individual items on this scale range from 1.815 (Not Very Valuable) to 3.004 (Valuable). The mean of the entire subscale is 14.682 (sd=8.818, maximum=30). The distribution is positively skewed (1.268), implying a concentration of low values.

<table>
<thead>
<tr>
<th>Item</th>
<th>Rotated Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our staff development program included discussion of the reasons for teaming.</td>
<td>.726</td>
</tr>
<tr>
<td>Our staff development program included an explanation of teaming practices.</td>
<td>.684</td>
</tr>
<tr>
<td>During at least six months before teaming began we had staff development meetings to prepare for teaming.</td>
<td>.659</td>
</tr>
<tr>
<td>Faculty members' opinions were considered when the decision to begin teaming was made.</td>
<td>.622</td>
</tr>
<tr>
<td>Some teachers on my team collaborated with other teachers on curriculum and methods before teaming was introduced.</td>
<td>.549</td>
</tr>
<tr>
<td>Teachers were asked with whom they would like to team before teaming began.</td>
<td>.505</td>
</tr>
</tbody>
</table>

Erb and Doda (1989) stress the importance of proper attention to technical aspects of training such as administrative support, training in specific skills, and
school organization. The fourth subscale, which I have named Support in Establishing Team Processes (see Table 28), is representative of this concern. The means of the six items on this scale range from 1.403 to 2.364 (not very valuable). The mean for the total scale is 11.459 (sd=7.187, maximum=30). The distribution is slightly positively skewed (.407), implying a slightly higher number of low scores.

Table 28
Support in Establishing Team Processes

<table>
<thead>
<tr>
<th>Item</th>
<th>Rotated Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our administrators have helped with guided practice in skills such as conducting meetings and scheduling.</td>
<td>.655</td>
</tr>
<tr>
<td>Our staff development programs included information about group processing.</td>
<td>.579</td>
</tr>
<tr>
<td>We have had a staff member who coordinated grade level activities across teams.</td>
<td>.565</td>
</tr>
<tr>
<td>We have had specific guidelines for team members' behavior at meetings.</td>
<td>.505</td>
</tr>
<tr>
<td>We have been trained in methods of student scheduling.</td>
<td>.671</td>
</tr>
<tr>
<td>Our principal gave us a schedule for our expected progress as a team.</td>
<td>.623</td>
</tr>
</tbody>
</table>

The fourth subscale includes three items representing staff characteristics relative to teaming (see Table 29). I have called it Staff Characteristics. Items on this subscale were ranked as relatively valuable by respondents with means ranging from 3.358 to 3.976 (valuable). The mean
for the total subscale is 10.938 (sd=3.269, maximum=15). The distribution is negatively skewed (-1.088), implying a concentration of high scores.

Table 29

Staff Characteristics

<table>
<thead>
<tr>
<th>Item</th>
<th>Rotated Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most team members have been experienced teachers at the middle school level.</td>
<td>.691</td>
</tr>
<tr>
<td>Our principal liked the concept of teaming.</td>
<td>.648</td>
</tr>
<tr>
<td>Our principal has met regularly with team representatives to discuss team decisions.</td>
<td>.579</td>
</tr>
</tbody>
</table>

Reflecting the importance of the climate in the total workplace, and that teams are not totally isolated from the rest of the school, the last subscale consisted totally of items from the modified Work Environment Scale (see Figure 5 and Table 30). This subscale represents, as did the Preconditions subscale, the sort of items to which Epstein and Maclver (1990) referred when they cautioned persons planning to begin teaming to prepare a receptive atmosphere before initiating the change. The atmosphere reflected by this subscale is one of supervisor support for teachers and innovation, while teachers are involved in their work and have sufficient autonomy to grow professionally within clearly defined expectations and roles. The means for these items range from 2.786 representing good supervisor support to 3.062 representing high job involvement. The
mean for the total subscale is 14.532 (sd=3.518, maximum=20). The scale is negatively skewed (-1.053), implying a concentration of high scores.

Table 30
Total School Work Environment Factors

<table>
<thead>
<tr>
<th>Item</th>
<th>Rotated Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement</td>
<td>.842</td>
</tr>
<tr>
<td>Innovation</td>
<td>.827</td>
</tr>
<tr>
<td>Supervisor Support</td>
<td>.812</td>
</tr>
<tr>
<td>Clarity</td>
<td>.798</td>
</tr>
<tr>
<td>Autonomy</td>
<td>.667</td>
</tr>
</tbody>
</table>

Multiple regression analysis

To determine the model, I used the five factors listed above and the number of daily planning periods as predictor (independent) variables and the total activity score (the sum of the scores on four domains) as the criterion (dependent) variable. For the purpose of cross-validation (Huck, Cormier & Bounds, 1974), I formed a data set using a randomly selected half of the sample. Since only some of the teams responded to the WES scale and scores were imputed for teachers on teams where only some members responded, N=80 for this data set. Only two factors proved significant. The model determined was:

Total score = 19.149 + .713Individuality w/Structure + .583WES
Multiple R = .762 and variation in the predictor variables (factors and work environment present during team development) account for 58.1% of the variation in the criterion variable (total team activity). In the cross-validation test, I used the other half of the cases. The values of the actual total score (mean = 54.375, sd = 10.903) and predicted total score (mean = 54.371, sd = 8.282) on the second group of cases were not significantly different (t = .006, df = 79, p = .996). Thus, the equation is a valid predictor of scores for the second group.

The multiple regression equation for the second half of the data set (N = 80) was:

\[
\text{Total Score} = 19.148 + .714 \text{ Individuality w/Structure} + .580 \text{ WES}
\]

The multiple R for this set of data was .760. Variation in the predictor variables accounted for 57.8% of the variation in the criterion variable.

Of the 58.1% of the variation in total score accounted for by variation in these two subscales in the first group, the largest share was the result of the Appreciation of Individuality Within the Team Structure Subscale (33.5%). Another 19.8% of the variation is accounted for by variation in the WES. The respective β-weights are displayed in Table 31.
Table 31

\( \beta \)-Weights of Factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Weight</td>
</tr>
<tr>
<td>Individuality w/Team</td>
<td>80</td>
<td>.679#</td>
</tr>
<tr>
<td>WES</td>
<td>80</td>
<td>.161**</td>
</tr>
</tbody>
</table>

*\( p < .0001 \)  **\( p < .05 \)

From this analysis, it appears that there are two major factors which influence team progress. The first can be characteristic of teams—the ability of members to appreciate individual differences while promoting good team structure and cooperative behavior. MacIver and Epstein (1990), Alexander and George (1981), and Plodzik and George (1989) all refer to this as "attitude". In addition, Erb and Doda argue for nurturing this attitude with staff development programs such as those listed as part of this subscale and consisting of training in understanding different teaching, learning, and personality styles, and understanding needs of young adolescents. The second major factor is a positive environment for teaming on the whole school level. This consists of support for teachers and innovation, with teachers involved in their work with sufficient autonomy to provide for professional growth.
Discussion

Activities Not Practiced by Teams

Conspicuous by the fact that they are not frequently practiced by the exemplary teams in this sample are several activities recommended by theorists. These include use of uniform discipline policies, specific scheduling guidelines, peer observation, teacher participation in planning for staff development, and coordination with non-team teachers.

Teachers' report that members of their teams do not use uniform student discipline measures. Literature supports uniform discipline (Erb and Doda, 1989). In addition, in most classrooms that I visited team discipline standards were posted. It would seem that teachers do not take the "official" team discipline standards seriously, or at least perceive that others do not follow through with this important aspect of interdisciplinary team organization. Results of the modified Work Environment Scale show high autonomy reported by this group. Perhaps the cooperation embraced by members, while including curriculum and general teaching methods, does not extend to losing their autonomy in specific, stressful situations brought about by the need to maintain discipline in the classroom. In addition, teachers are less likely to support discipline structures adopted automatically to satisfy administrative directives than those developed from their own classroom experience. To achieve a goal of uniform discipline it seems that
extensive and continuing training in theorists' and practitioners' recommendations should be available to team members. In addition, sufficient time should be allowed for discussion of the varying suggestions and formation (with periodic revision) by consensus of a specific team discipline paradigm. In this manner, a uniform discipline system might be perceived less as an infringement on teacher autonomy or as a rigid system which is insensitive to the changing needs of young adolescents.

Team members do not report use of specific scheduling guidelines for student scheduling. There are several possible reasons for this which were not explored in this survey. One possible reason is the confusion of specific guidelines with tracking. Another more plausible one is evident in several teacher comments noting that "the team leader does that in the summer". It is possible that the team leader has some sort of scheduling guidelines, but that this is not a truly cooperative team activity.

Two activities which are promoted often in staff development literature (Joyce, 1990; Joyce & McKibbin, 1982; and, Joyce and Showers, 1982) are included in those not practiced by exemplary teams. The concept that teachers, or groups of teachers, should have significant input into staff development programs has returned to the spotlight fairly recent, as evidenced by the ASCD Yearbook, 1991. Highly promoted by numerous theorists, it is little
practiced by members of these teams. Teachers questioned about this often replied that designing staff development "is not my responsibility". Even though Shanker (1990) reports that participation in decisions about staff development by teachers is critical, I did not perceive a desire in the teachers with whom I spoke to participate in this important part of their professional growth. As far as peer coaching is concerned, a common written comment was, "We are all teaching at the same time. How can we observe each other?" It would seem that administrators have not heeded theorists' requirements that someone be available to substitute so that team members can observe each other. In addition to losing a staff development method considered highly effective (Joyce & Showers, 1982), this lack might be cause for limited curriculum coordination and teachers' perceptions that they do not have enough information to regularly plan interdisciplinary units. In addition, it causes teachers to lose some of the richness they might develop in their own variety of teaching techniques by observing others.

The last activity not fully practiced has the potential to be a serious obstacle to teaming growth, detrimental to staff morale, and harmful to students. Inability or unwillingness to coordinate effectively with non-team teachers is a serious flaw in teaming as it is widely practiced. Arhar, Johnston and Markle (1988) noted the
frustration and bitterness of teachers not included on teams. These teachers are generally teachers whose subject areas include non-academic courses such as physical education, industrial arts, home economics, music, art, drama, and foreign languages. Although the literature contains arguments stressing the importance of these exploratory activities for young adolescents, they are generally considered frills. With programs considered frills and constantly threatened by budget cuts, these teachers are further isolated by the cohesiveness of the academic teams. Numerous teachers from this group, realizing that I was surveying team members and they were not to be included, sought me out with their opinions. My notes include numerous references such as, "We are not real people here," and "The teams run this school. Team representatives meet with the principal. We have nothing to say about what is going on." In addition, there were some occasions in which I observed teams exhibiting total lack of respect for the programs, schedules, and rights of non-team teachers. Considering that administrators often come from the ranks of these specialty teachers, this situation may be cause for lack of support for teaming in some schools.

In addition to the effect this situation has on non-team teachers, it may also be detrimental to the students. In his work on multiple intelligences Gardner (1985) describes seven strands of intelligence--linguistic,
logical-mathematical, bodily-kinesthetic, spatial, intra-personal, and inter-personal, and musical. Although teachers are becoming increasingly aware of variations in strengths and learning styles, the emphasis in core academic classrooms is on two or three of these intelligences. Clark and Clark (1989) stress the importance of building confidence on areas of strength that can be used to help students function in areas of weakness. By excluding non-team teachers, team members are losing valuable sources of information on their students' abilities and attitudes. In addition, students may be losing the value of having an important advocate, a specialty teacher in whose class they perform well, when considerations of parent communications, solutions to problems, and even retention are considered. Although scheduling time for specialty teachers to meet with teams regularly is difficult, it is probably essential to future healthy growth of teaming that such arrangements be made. For the good of teaming, teachers, and students, in the future more consideration should be made of the important contributions made by all teachers to students and schools.

Consistent Support for Team Development

The importance of consistent support for team development is emphasized by the situation of the Transition Teams. These teams represent a group which may become one of the other two types, or may stagnate or drop out of
teaming. The frustration of those teachers whose opinion is that their teams' progress has been sidetracked by radical changes in expectations, lack of administrative support, or unnecessary intervention by governing bodies is a serious detriment to their morale. The situation also lends strength to the argument that teams need clear direction along a steady course for at least two or three years in order to become expert in all domains.

Clear direction, and a good understanding of the reasons for teaming are necessary in developing all types of teams. The reasons communicated by the administration for teaming establishes the ultimate focus of the team and aid in achieving clarity in roles and expectations necessary in successful work places. Certainly, Administrative teams accomplish the desirable goal of creating small social groups for students and teachers, and of helping to bring about some coordination in the test and project due date calendar and of allowing for more consistent attention to basic skills. George, Stevenson, Thomason, and Beane note that too few teams have made significant changes in curriculum in their schools (1992). Evidence shows that both building administrators and central office personnel must be actively involved in these efforts if they are to be sustained (Pajak, 1992). If the goal of teaming is to have a more pervasive effect on the curriculum--to develop Curriculum-oriented teams--that goal should be articulated
by administrators and supervisors, and sufficient support for its accomplishment should be given.

The Importance of Case Studies

Regardless of how complete a survey is, given time and linguistic parameters, it can only roughly define the items that it attempts to measure. Systematic on-site observation can yield much richer data, and give better insight into the context in which the phenomenon being studied is embedded. Data from these studies can better take into account bold or subtle variations in context, subtle differences in expectations and emphasis of participants and other system members. This is particularly true in situations like the introduction of interdisciplinary team organization which depends on numerous variations in personalities, expectations, abilities, materials, curricula, and personal and institutional goals among the numerous persons involved with even the smallest teams. The importance of the Work Environment Scale factors in the model indicate the strength of contextual factors in team development. Case study data can yield much richer information on variations of these factors and how they interact to form the numerous variations of team organization. Only when these richer data are considered can the many possible types of teams--exemplary within their special contexts--be discovered.

For this reason, the model based on survey data alone, indicates only little more than half of the variation in the
qualitative representation of team activity using very
general factors. Case study data indicate that there is no
textbook approach to development of exemplary teams.
Indeed, there is no textbook definition of exemplary team
because of the many subtle variations in school contexts and
other factors surrounding team development, and the
variations in expectations and goals for team activities.

Caution

One of the assumptions of this study is that
interdisciplinary team organization and the resulting
teacher collaboration has positive benefits for students.
This is the general consensus among theorists and
practitioners (Arhar, Johnston & Markle, 1989). Maciver and
Epstein (1990), however, caution that if teaming is
introduced without sufficient teacher training it can be
detrimental to the school program. Observations of team
meetings revealed that several activities, which may be
detrimental to students, are practiced by a small minority
of the teams observed. These practices included use of
other team members' opinions to reinforce personal
prejudices against certain students or groups of students,
and to validate use of poor teaching methods. Also included
were discussions of students and non-team teachers which
could be classified as gossip rather than that efforts to seek
solutions to existing problems. Some teams used the team
structure to support unfair, ineffective, or unnecessarily
harsh discipline measures. Team theory assumes that interaction and collaboration will lead teachers to broader appreciation of individual students, and growth in their ability to use a broader range of teaching strategies. It is important that teachers, administrators, and community members be aware of effective team activities and attitudes and act to assure that detrimental activities and attitudes are not tolerated.

Recommendations for Further Study

There is a substantial amount of literature on interdisciplinary team organization. However, most of the literature is theory rather than research-based. Many questions remain about the practice and effects of this method of organization. One of the limitations of this study is the size and location of the sample. In addition to the sample being small, it is not representative of teaming practice throughout the country. Schools in other areas, influenced by different cultural concerns, laws, and institutions of higher education might introduce, nurture, and practice teaming quite differently. Certainly studies of other populations would be valuable.

An assumption of this study was that teaming benefits students. However, there is still debate on this element, complicated by the fact that there are many variations of teams—even those considered exemplary. Trickett and Moos
(1973) contend that the CES is an effective measure of classroom climate, and that there is a link between positive teacher work climate and student classroom climate (Moos, 1987b). Use of the CES and WES could provide a beginning for studying climate effects of teaming on students. Further studies of achievement, drop-out rate, and attendance of the students on the various forms of teams could yield interesting information on the dynamics between specific variations of teams and performance of their clientele. Case studies of these phenomena could provide rich data clarifying these relationships.

Similarly, study of job-satisfaction, stress-rate, promotions, career changes, and personality types of the teachers on various forms of teams would be of interest. In addition, continued team progress, stagnation, or dissolution could form the basis for an interesting longitudinal study.

The information reported on the various types of teams is severely limited by the short amount of time spent with each team. Further study of teams should rely heavily on case studies which can more distinctly classify teams, their focus, their responses to administrative priorities, their effects on students and teachers, and the elements of context which affect team development. In addition, data based on such studies might be used to obtain the detail necessary to answer several interesting questions:
1. Are teams which might be labeled as unsuccessful or stagnant really so, or might they be exemplary within their specific setting?

2. Are there factors which have a distinctly negative effect on team development in various settings, and if so, what might be done to mitigate them?

3. Why are some team practices deemed important by theorists not commonly used, what is their relationship to team strength, and what makes them important in the settings in which they are practiced?

Since a relatively small number of teams practice fully integrating curriculum, it would be interesting to investigate social, budget, legal, and many other factors which seem to limit use of interdisciplinary units and other forms of integrated curriculum. The qualitative data seem to indicate that participation of division-level personnel in curriculum planning facilitates interdisciplinary instruction. Study of the interaction of participants and the effects of actively including division-level personnel in cooperative curriculum planning efforts could yield valuable information on further implementing interdisciplinary curriculum.
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APPENDIX A
PATRICE KEOUGH GIBSON
1930 Liberty
Dahlgren, VA 22446
703/663-2127
December, 1991

As I explained to you in our telephone conversation in December, 1991, as part of my graduate work at Virginia Tech, I am studying interdisciplinary team organization in middle level schools. I would like to survey you and teachers on your teams and observe team meetings.

Because of your position as the principal of a middle level school, your contribution can be valuable to this study. Please be assured that all data will remain confidential and that names of individuals or specific schools will not be included in the final report.

For the purpose of this research, an interdisciplinary team is defined as a group of two to five teachers who are responsible for teaching the core subjects—mathematics, science, social studies, and language arts—to a common group of students during a four or five block period of time daily. In addition, these teachers each have two planning periods daily—one for team planning and the other for individual planning. I would like to gather data only from teams where at least 50% of the members have been on the team since September, 1989.

I would appreciate it if you would distribute the enclosed surveys to all members of each team which meets the criteria described above. Time required to complete the survey should be about 30 minutes. I would like to collect the completed surveys when I observe the teams in your school on January 1992. At that time, as we discussed, I would also like to observe team meetings for at least one team from each grade in your school.

In addition, I would appreciate it if you would complete the short survey at the bottom of this letter.

I appreciate very much your participation and that of your faculty in helping me obtain an accurate description of interdisciplinary team activities in Virginia middle level schools.

Sincerely,

1. How many teams are there at each grade level in your school?
   6th______ 7th______ 8th______

2. For how many years has your school served middle level students?_______

3. For how long have you been employed at this school?_______

4. For how long has teaming been practiced in your school?_______

5. How many teachers are employed at your school?_______

6. How many of them are assigned to teams?_______
APPENDIX B

SURVEY OF INTERDISCIPLINARY TEAM ACTIVITIES IN VIRGINIA MIDDLE LEVEL SCHOOLS

As a part of my graduate work at Virginia Tech, I am studying the activities of interdisciplinary teams in Virginia middle schools. Your input can be valuable in helping me to obtain an accurate picture of the wide variety of activities and experiences associated with teaming.

Would you take about 30 minutes within the next week and complete the attached survey? I will be visiting your school to observe some of the teams, and would like to collect the completed surveys at that time. I have asked your principal to schedule a convenient time for the visit.

Your name, team and school are requested only for the purpose of monitoring. Names and specific information on schools or teams will not be published in the report, so you can be assured that your contribution will be confidential.

Thank you very much.

Sincerely,

Patrice K. Gibson

SECTION I

This section is designed to determine the nature of your team. Please circle the correct answers for 1-5, and fill in the blanks for 6 and 7.

1. How many teachers are on your team?
   1 2 3 4 5 6 or more

2. Is your team responsible for teaching the core subjects--science, mathematics, social studies, and language arts--to a common group of students?
   YES NO

3. Does your team share a common group of students during a block of four or five periods daily?
   YES NO

4. Do you have two planning periods--one for team planning and one for individual planning?
   YES NO

5. Have at least 50% of the members of your team been on the team for at least two full academic years?
   YES NO

6. For how many years has your team been operating?_____

7. Our team has a common planning area.
   YES NO

8. Please include the following information so that I can contact you if I need additional information. Your response will be strictly confidential and names of individuals, teams, or schools will not be included in the report. Thank you very much for your help with this project.

   NAME:  TEAM NAME:  SCHOOL:  SCHOOL DIVISION:

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SECTION II

This section is designed to indicate the activities of your team. Please circle the answer which best describes how often your team is involved in each activity. Please use the following key:

0 = NEVER  1 = INFREQUENTLY  2 = FREQUENTLY  3 = VERY FREQUENTLY

1. Our team keeps copies of meeting agendas.  0123
2. Our team prepares as a team for parent/student conferences.  0123
3. We plan for practice of new instructional techniques as a team.  0123
4. Members of our team ask other members to observe their classes and provide feedback.  0123
5. Our team has a member who keeps minutes of our meetings.  0123
6. We take students on team outings.  0123
7. Our team has regular, scheduled meetings.  0123
8. Members of our team neglect to follow through on team decisions.  0123
9. Our team decides as a group how to spend team funds.  0123
10. We plan interdisciplinary units.  0123
11. Members of our team are aware of what is being taught in all core subjects.  0123
12. Students on our team each have at least one team member who knows the "total picture" of their grades, accomplishments, and problems.  0123
13. We teach interdisciplinary units.  0123
14. Our team teaches some basic skills (such as punctuation) in all core classes.  0123
15. We coordinate instructional units to overlap for reinforcement.  0123
16. Each team member uses his own discipline structure and methods.  0123
17. We resolve our disputes in our regular meetings.  0123
18. Our team has a member represent all members when making calls to parents.  0123
19. We share ideas about classroom problems and solutions.  0123
20. Our team discusses how we can improve our communication with each other.  0123
21. We discuss curriculum at regular meetings.  0123
22. One member dominates team discussions.  0123
23. We plan as a team for staff development.  0123
24. We use specific student scheduling guidelines.  0123
25. We develop solutions to students' problems in our regular meetings.  0123
26. Team members share information they learn at conferences or graduate classes.  0123
27. We hold student recognition events such as honor roll or "success parties".  0123
28. We regroup students as the need arises.  0123
29. One member of our team is responsible for coordination with non-core teachers who share our students.  0123
SECTION 111

This section is designed to gather information about the teachers on your team and the population of your school. Please indicate the best response.

1. Information About You. Please circle the appropriate response.

   a. For which grade levels are you certified?
      - ELEMENTARY
      - MIDDLE
      - SECONDARY

   b. Which subjects are you teaching in 1991-92?
      - SCIENCE
      - SOCIAL STUDIES
      - MATHEMATICS
      - LANGUAGE ARTS
      - OTHER:

   c. What is your highest obtained educational level?
      - BACH.
      - MASTERS
      - M+30
      - CAGS
      - DR.

   d. How many years of middle school experience do you have?
      - 1-5
      - 6-10
      - 11-15
      - 16-20
      - 20+

   e. Are you the team leader?
      - YES
      - NO

2. Characteristics of Students on Your Team. Please circle the appropriate responses.

   a. Approximately how many students are ON YOUR TEAM?
      - 0-30
      - 31-60
      - 61-90
      - 91-120
      - 121-150
      - 151+

   b. Circle the grade levels of students ON YOUR TEAM.
      - 6th
      - 7th
      - 8th
      - NONE

   c. On standard achievement tests, approximately what percent of the students ON YOUR TEAM are:
      - Considerably above national norm
      - Somewhat above national norm
      - At national norm
      - Somewhat below national norm
      - Considerably below national norm

   d. Circle the percentage of students in each grade in your school who are assigned to teams.
      - 6th
      - 7th
      - 8th

3. Use of Weekly Planning Time. Circle the response that best represents the type of work you and your team members do during team planning time.

   a. Individual Teacher Prep. (Tests, grades, lesson plans)
      - 0%  1-25%
      - 26-50%
      - 51-75%
      - 76-100%

   b. Coordinate content. (Common themes for instruction)
      - 0%  1-25%
      - 26-50%
      - 51-75%
      - 76-100%

   c. Revise schedules.
      - 0%  1-25%
      - 26-50%
      - 51-75%
      - 76-100%

   d. Regroup students.
      - 0%  1-25%
      - 26-50%
      - 51-75%
      - 76-100%

   e. Discuss individual student weaknesses.
      - 0%  1-25%
      - 26-50%
      - 51-75%
      - 76-100%

   f. Plan specific approaches to improve student performance.
      - 0%  1-25%
      - 26-50%
      - 51-75%
      - 76-100%

   g. Plan special events.
      - 0%  1-25%
      - 26-50%
      - 51-75%
      - 76-100%

   h. Conduct parent conferences.
      - 0%  1-25%
      - 26-50%
      - 51-75%
      - 76-100%

   i. Other (Describe)
      - 0%  1-25%
      - 26-50%
      - 51-75%
      - 76-100%
SECTION IV
This section is designed to indicate how valuable you think certain factors were in your team’s development. Please circle the best responses. Please use the following key:

<table>
<thead>
<tr>
<th>0 = NOT APPLICABLE</th>
<th>1 = DETRIMENTAL</th>
<th>2 = NOT VERY VALUABLE</th>
<th>3 = VALUABLE</th>
<th>4 = VERY VALUABLE</th>
<th>5 = EXTREMELY VALUABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Most team members have been experienced teachers at the middle school level.</td>
<td>0 1 2 3 4 5</td>
<td>20. Our staff development program included an explanation of teaching practices.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Our school has a departmental system which “has operated along with our teams.”</td>
<td>0 1 2 3 4 5</td>
<td>21. Our staff development programs included explanations of the needs and characteristics of middle school students.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Most members of my team have had graduate training in middle school education.</td>
<td>0 1 2 3 4 5</td>
<td>22. Our staff development programs included information to help us understand different personalities, learning and teaching styles. 0 1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. We have had a staff member who coordinated grade level activities across teams.</td>
<td>0 1 2 3 4 5</td>
<td>23. Our staff development programs included information about group processing.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Some teachers on my team collaborated with other teachers on curriculum and methods before teaming was introduced.</td>
<td>0 1 2 3 4 5</td>
<td>24. Our staff development programs included information on how to plan interdisciplinary units and coordinate instruction.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Most teachers on my team were eager to try teaming.</td>
<td>0 1 2 3 4 5</td>
<td>25. Faculty members visited with successful teams before teaming began.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Faculty members’ opinions were considered when the decision to team was made.</td>
<td>0 1 2 3 4 5</td>
<td>26. Our team has set goals periodically.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Our principal has had graduate training in the needs of middle school students.</td>
<td>0 1 2 3 4 5</td>
<td>27. After we began teaming, continuing staff development contributed to team progress.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Teachers were asked with whom they would like to team before teaming began.</td>
<td>0 1 2 3 4 5</td>
<td>28. In our meetings, we have shared classroom methods and strategies.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Our principal gave us a schedule for our expected progress and goals as a team.</td>
<td>0 1 2 3 4 5</td>
<td>29. Most teachers on our team have been willing to learn new teaching techniques.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Our principal liked the concept of teaming.</td>
<td>0 1 2 3 4 5</td>
<td>30. We have planned our meeting agendas as a team.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Our principal has met regularly with team representatives to discuss team decisions.</td>
<td>0 1 2 3 4 5</td>
<td>31. Our team leader has facilitated our team’s work.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Public meetings have been held in our community to explain teaming to parents.</td>
<td>0 1 2 3 4 5</td>
<td>32. We have had specific guidelines for team members’ behavior at meetings.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Our principal encouraged team field trips.</td>
<td>0 1 2 3 4 5</td>
<td>33. Our staff development program included discussion of the reasons for teaming.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Our team has scheduled students within our designated block of time.</td>
<td>0 1 2 3 4 5</td>
<td>34. Team members have acknowledged and accepted others’ personality differences.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. We have built a strong team identity.</td>
<td>0 1 2 3 4 5</td>
<td>35. Our team has devoted time to the personal needs of its members.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. We have been trained in methods of student scheduling.</td>
<td>0 1 2 3 4 5</td>
<td>36. Our team has promoted family activities with students and parents.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Our administrators have helped with guided practice in skills such as conducting meetings and student scheduling.</td>
<td>0 1 2 3 4 5</td>
<td>37. Most members of our team have enjoyed team outings with students.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. During at least six months before teaming began we had staff development meetings to prepare for teaming.</td>
<td>0 1 2 3 4 5</td>
<td>38. Our team has coordinated content with teachers who are not on the team.</td>
<td>0 1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION V: IF THERE ARE ANY FACTORS WHICH YOU CONSIDER PARTICULARLY IMPORTANT TO THE DEVELOPMENT OF YOUR TEAM, PLEASE EXPLAIN THEM HERE.

Thank you for your help with this project.
SAMPLE ITEMS FOR THE

WORK ENVIRONMENT SCALE - REAL FORM
by Paul M. Insel and Rudolf H. Moos

Directions: These statements are about the place in which you work. The statements are intended to apply to all work environments. However, some words may not be quite suitable for your work environment. For example, the terms "supervisor" is meant to refer to the boss, manager, department head, or the person or persons to whom an employee reports. You are to decide which statements are true of your work environment and which are false.

Involvement Scale
1. The work is really challenging.

Peer Cohesion
2. People go out of their way to help a new employee feel comfortable.

Task Orientation
5. People pay a lot of attention to getting work done.

Work Pressure
6. There is constant pressure to keep working.

Control
8. There's a strict emphasis on following policies and regulations.

Innovation
9. Doing things in a different way is valued.

Supervisor Support
13. Supervisors usually compliment an employee who does something well.

Autonomy
14. Employees have a great deal of freedom to do as they like.

Clarity
17. Activities are well-planned.

Physical Comfort
20. The lighting is extremely good.

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APPENDIX D

Division of Questions on Section II of Team Survey
by Domain

Domain 1: Organization  Domain 2: Attention to Students
1
5
7
8*
17
20
22*

Domain 3: Sharing  Domain 4: Coordination
4
9
12
18
19
23
26
3
10
11
13
14
15
21

* Indicates question in which "0" response indicates high team activity and "3" response indicates low team activity.
APPENDIX E

Permission Form

PATRICE KEOUGH GIBSON
1930 Liberty
Dahlgren, VA 22448
703/663-2127

As part of my graduate work at Virginia Tech, I am studying the activities of interdisciplinary teams in Virginia middle level schools. Your input can be valuable in helping me to obtain an accurate picture of the wide variety of activities and experiences associated with teaming.

I would like your permission to observe you and to use the data gathered in this study.

Please be assured that all data will remain confidential and that names and identifying information for individuals, teams, or specific schools will not be included in the final report or revealed to anyone after this project is completed. The names of specific teams and schools will be used by the researcher only for monitoring purposes and the list of names will be destroyed as soon as all the data have been collected.

A summary of this study will be available for anyone who requests one.

DATE: ________________

I give my permission to be observed by Patrice Gibson for graduate study. I also give my permission for the data gathered to be reported in a research study. I understand that all information will be confidential and that specific individuals, teams, schools, and school divisions will not be identified in the final report or at any other point in the course of this project.

SIGNED: ____________________________
## APPENDIX F

### Observation Form

**OBSERVED EVIDENCES OF TEAM BEHAVIORS**

<table>
<thead>
<tr>
<th>SCHOOL:</th>
<th>TEAM:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE:</td>
<td>TIME:</td>
</tr>
</tbody>
</table>

### DOMAIN 1: ORGANIZATION

- Regular meetings
- Conduct guidelines
- Written agenda
- Meeting agenda file
- Minutes
- Full participation
- Follow through
- Team leader
- Evaluation of team functioning
- Resolves disputes/clarifies

### DOMAIN 2: ATTENTION TO STUDENTS

- Team prep for conferences
- Same discipline structure/all classes
- Student recognition
- Team meets with other teachers
- Guidelines for student schedule changes
- Student rescheduling
- Team test/project calendar
- Discuss student problems/solutions
- Team outings
- Introduces procedures as a team

### DOMAIN 3: SHARING RESPONSIBILITY & GROWTH

- Sharing professional information
- One member represents team/phone calls
- Ideas about classroom practices
- General problems and solutions
- Team newsletter to parents
- "Advisor" for each student
- Peer observation and feedback
- In-service planning
- Spending team funds
- Representation to administration

### DOMAIN 4: COORDINATION OF INSTRUCTION

- Teaches cross-subject skills
- Coordinates test/project due dates
- Aware of units taught by others
- Time units to overlap for reinforcement
- Textbook review as a team
- Materials purchased
- Team approach to new instructional techniques
- Plan interdisciplinary units
- Teach interdisciplinary units
- Discuss curriculum
APPENDIX G

Sample of Report of Team Activity

Sample 2 Cases numbered 223-226  Team 3362

This team is a 6th grade team with 4 teachers, all of whom responded to the survey. The school has 1104 students and is characterized by the principal as a suburban school. The team has been operating for several years but has 2 new members. Team members responded as follows to the survey:

I. In the area of organization the team:

VERY FREQUENTLY
Our team keeps copies of meeting agendas.
All members contribute to team discussions.
Our team has a member who keeps minutes of our meetings.
Our team has regular, scheduled meetings.
We resolve our disputes in our regular meetings.

FREQUENTLY
Members of our team follow through on team decisions.

INFREQUENTLY
Our team discusses how we can improve our communication with each other.

II. In the area of attention to students the team:

VERY FREQUENTLY
We use specific student scheduling guidelines.
Our team prepares as a team for parent/student conferences.
We develop solutions to students’ problems in our regular meetings.
We hold student recognition events such as honor roll or “success parties”.
We regroup students as the need arises.

FREQUENTLY
We take students on team outings.

INFREQUENTLY
Team members use uniform discipline structure and methods.
One member of our team is responsible for coordination with non-core teachers who share our students.

III. In the area of shared responsibility the team:

VERY FREQUENTLY
We share ideas about classroom problems and solutions.
Our team decides as a group how to spend team funds.
Students on our team each have at least one team member who knows the “total picture” of their grades, accomplishments, and problems.
Our team has a member represent all members when making calls to parents.

FREQUENTLY
Team members share information they learn at conferences or graduate classes.

NEVER
We plan as a team for staff development.
Members of our team ask other members to observe their classes and provide feedback.

IV. In the area of coordination of instruction the team:

VERY FREQUENTLY
Members of our team are aware of what is being taught in all core subjects.
Our team teaches some basic skills (such as punctuation) in all core classes.
We coordinate instructional units to overlap for reinforcement.
We discuss curriculum at regular meetings.

INFREQUENTLY
We plan for practice of new instructional techniques as a team.
We plan interdisciplinary units.
We teach interdisciplinary units.
The vita has been removed from the scanned document