In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the head of my department or by his or her representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

(Signature)

Department of Curriculum and Instruction

The University of British Columbia
Vancouver, Canada

Date 12/12/92
Abstract

This case study examined how a team of middle school teachers from different subject areas collaboratively planned interdisciplinary experiences for their students.

Using fieldwork research methods, including long-term participant-observation, interviewing and document analysis, the study explored how team members planned interdisciplinary experiences. Data were analyzed through a process of searching for patterns, coding and comparison, utilizing the Hackman and Oldham (1980) model of group effectiveness as a heuristic for understanding the group processes.

The results of this study raise questions about the preeminence of the "interdisciplinary thematic unit" in middle school rhetoric. The team developed a conception of interdisciplinarity that progressed through phases of elusion and inclusion to allusion. Team members chose not to create any tightly-structured interdisciplinary thematic units, and they did not follow any established planning processes designed for creating such units; rather, they dialogued about their subject areas in ways that allowed them to make ongoing connections between subjects. Through their dialogues, team members gained insight into both their own subject areas and connections among subject areas.

The Interdisciplinary Judgment Matrix was developed as a means of understanding team members' decision-making in determining whether to plan interdisciplinary experiences. This matrix presents the teachers' decision-making as a process of judging the relevance of potential interdisciplinary experiences both to the established curriculum and to the subject specialists' criteria for what students ought to derive from a course. The matrix argues that
team members do not merely follow a curriculum guide or textbook, but make professional judgments balancing the demands of the curriculum with subject specialists' assumptions and concerns.

The study has implications for both practitioners and researchers. Middle school team members need to be given time to develop a conception of interdisciplinarity that fits with their understanding of the purposes of teaming. Also, rather than implementing pre-packaged interdisciplinary thematic units, such teams should be encouraged to dialogue about their subject areas in order to make meaningful and ongoing connections for their students. Rather than adhering to a set of steps for creating interdisciplinary thematic units, middle school teams must learn to discuss the substance of their teaching with one another. Such discussion promises professional growth through everyday occupational conditions.

Based on the findings of this study, researchers might profitably investigate the role of unit planning as the common focus of collaborative planning. The study also suggests research into the effectiveness of pre-established planning models as compared to the dialoguing the study recommends. Finally, the study raises a research question about the interplay of collaborative groups with the larger culture of the school.
# Table of Contents

Abstract ....................................................... ii
Acknowledgement ............................................. x

Chapter 1: Introduction ........................................ 1
  Problem statement and exploratory questions .......... 2
    Background of the problem ............................ 2
    Exploratory questions ................................ 4
  Research design and methods ........................... 5
    Selection of research site ............................ 5
    Data collection ....................................... 6
    Delimitations of the design ......................... 7
  Significance of the study .............................. 8
  Definitions ............................................. 10
  Overview of the dissertation ............................ 12

Chapter 2: Review of the literature ...................... 14
  Teacher planning ....................................... 14
    Survey research and teacher planning ............... 16
    Experimental research and teacher planning ....... 20
    Case study research and teacher planning .......... 25
    Summary: teacher planning ........................... 30
  Teachers in collaboration ................................ 32
    Benefits of collaboration ............................ 33
    Risks of collaboration ................................ 36
    Collaboration in middle schools .................... 37
    Collaborative planning and a conceptual model .... 40
    Collaboration and organizational theory--a model of
effectiveness ............................................. 44
    Summary: collaboration ................................ 47
  Interdisciplinary collaboration ......................... 48
    The disciplines ....................................... 50
    Interdisciplinarity and the middle school .......... 55
    Research on disciplinary differences and interdisciplinary
teaching .................................................. 57
    Interdisciplinary planning models ................... 61
    Summary: interdisciplinary approaches ............... 61

Chapter 3: Research design and methodology ............. 64
  Methods and procedures ................................ 64
  Research perspective .................................... 64
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case study rationale</td>
<td>67</td>
</tr>
<tr>
<td>Overview of field research</td>
<td>68</td>
</tr>
<tr>
<td>Site selection and entry</td>
<td>69</td>
</tr>
<tr>
<td>Sources and settings for data collection</td>
<td>72</td>
</tr>
<tr>
<td>Team meetings</td>
<td>72</td>
</tr>
<tr>
<td>Individual classrooms</td>
<td>73</td>
</tr>
<tr>
<td>The school</td>
<td>75</td>
</tr>
<tr>
<td>Teachers</td>
<td>77</td>
</tr>
<tr>
<td>Teacher and team products: documents and projects</td>
<td>79</td>
</tr>
<tr>
<td>Sampling frame</td>
<td>80</td>
</tr>
<tr>
<td>Methods of data collection</td>
<td>82</td>
</tr>
<tr>
<td>Fieldnotes</td>
<td>82</td>
</tr>
<tr>
<td>Participant observation</td>
<td>83</td>
</tr>
<tr>
<td>Interviews</td>
<td>85</td>
</tr>
<tr>
<td>Document and artifact analysis</td>
<td>87</td>
</tr>
<tr>
<td>Data analysis</td>
<td>88</td>
</tr>
<tr>
<td>Validity</td>
<td>93</td>
</tr>
<tr>
<td>Multiple strategies in this study</td>
<td>95</td>
</tr>
<tr>
<td>External validity</td>
<td>96</td>
</tr>
<tr>
<td>Reflexivity</td>
<td>97</td>
</tr>
<tr>
<td>Reciprocity</td>
<td>98</td>
</tr>
<tr>
<td>Summary</td>
<td>99</td>
</tr>
<tr>
<td>Chapter 4: The Waterfront Team</td>
<td>100</td>
</tr>
<tr>
<td>Waterfront, a middle school</td>
<td>100</td>
</tr>
<tr>
<td>The Waterfront team: T8</td>
<td>102</td>
</tr>
<tr>
<td>Team members</td>
<td>104</td>
</tr>
<tr>
<td>Catherine</td>
<td>104</td>
</tr>
<tr>
<td>Jeremy</td>
<td>108</td>
</tr>
<tr>
<td>Trent</td>
<td>110</td>
</tr>
<tr>
<td>Summary</td>
<td>113</td>
</tr>
<tr>
<td>Chapter 5: Findings</td>
<td>114</td>
</tr>
<tr>
<td>Individual teacher's planning compared</td>
<td>116</td>
</tr>
<tr>
<td>Yearly planning</td>
<td>116</td>
</tr>
<tr>
<td>Term and weekly planning</td>
<td>122</td>
</tr>
<tr>
<td>Unit planning</td>
<td>123</td>
</tr>
<tr>
<td>Lesson or daily planning</td>
<td>131</td>
</tr>
<tr>
<td>Composition of the team of planners</td>
<td>133</td>
</tr>
<tr>
<td>Findings and teacher planning research</td>
<td>134</td>
</tr>
<tr>
<td>Summary</td>
<td>138</td>
</tr>
<tr>
<td>Teachers' conceptions of the purposes of teaming</td>
<td>139</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Multiple purposes</td>
<td>140</td>
</tr>
<tr>
<td>Isolating the planning of interdisciplinary experiences</td>
<td>144</td>
</tr>
<tr>
<td>Summary</td>
<td>147</td>
</tr>
<tr>
<td>Interdisciplinarity--an evolving conception</td>
<td>148</td>
</tr>
<tr>
<td>Reflection and deferral</td>
<td>149</td>
</tr>
<tr>
<td>Active phase--&quot;See, we've integrated&quot;</td>
<td>156</td>
</tr>
<tr>
<td>Allusion: from snatched moments to nitty gritty</td>
<td>160</td>
</tr>
<tr>
<td>Summary</td>
<td>166</td>
</tr>
<tr>
<td>Long-term planning and a conception of</td>
<td>167</td>
</tr>
<tr>
<td>interdisciplinary experiences</td>
<td></td>
</tr>
<tr>
<td>Major issues in the planning meetings</td>
<td>167</td>
</tr>
<tr>
<td>Interdisciplinarity in long-term planning</td>
<td>169</td>
</tr>
<tr>
<td>Summary</td>
<td>172</td>
</tr>
<tr>
<td>Deciding to integrate curricula: The Interdisciplinary Judgment Matrix</td>
<td>173</td>
</tr>
<tr>
<td>Content vs. intent in the interdisciplinary judgment matrix</td>
<td>174</td>
</tr>
<tr>
<td>Evidence for the model: &quot;MacGyver&quot;</td>
<td>178</td>
</tr>
<tr>
<td>Other examples</td>
<td>181</td>
</tr>
<tr>
<td>Significance of the model</td>
<td>185</td>
</tr>
<tr>
<td>Summary</td>
<td>185</td>
</tr>
<tr>
<td>Planning processes of the team</td>
<td>186</td>
</tr>
<tr>
<td>Agenda and structure</td>
<td>187</td>
</tr>
<tr>
<td>Leadership and decision making</td>
<td>192</td>
</tr>
<tr>
<td>Content smorgasbord and dialogism</td>
<td>194</td>
</tr>
<tr>
<td>Planning process and the Hackman &amp; Oldham model</td>
<td>200</td>
</tr>
<tr>
<td>Summary</td>
<td>203</td>
</tr>
<tr>
<td>Planning concerns</td>
<td>203</td>
</tr>
<tr>
<td>Student-related</td>
<td>204</td>
</tr>
<tr>
<td>The mechanics of planning</td>
<td>208</td>
</tr>
<tr>
<td>Resources and materials</td>
<td>211</td>
</tr>
<tr>
<td>Timing and flow</td>
<td>212</td>
</tr>
<tr>
<td>Subject areas and the curriculum</td>
<td>213</td>
</tr>
<tr>
<td>Relations with the school at large</td>
<td>216</td>
</tr>
<tr>
<td>Summary</td>
<td>218</td>
</tr>
<tr>
<td>Impact of the school</td>
<td>219</td>
</tr>
<tr>
<td>Organizational support: Rewards vs. &quot;motherhood stuff&quot;</td>
<td>219</td>
</tr>
<tr>
<td>Organizational support: Availability of training and assistance</td>
<td>229</td>
</tr>
<tr>
<td>Organizational support: Clarity of task requirements and constraints</td>
<td>231</td>
</tr>
<tr>
<td>Summary</td>
<td>232</td>
</tr>
<tr>
<td>Chapter summary</td>
<td>233</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Chapter 6: Conclusions and implications</td>
<td>235</td>
</tr>
<tr>
<td>Findings and discussion</td>
<td>235</td>
</tr>
<tr>
<td>Teacher planning</td>
<td>235</td>
</tr>
<tr>
<td>Collaboration</td>
<td>240</td>
</tr>
<tr>
<td>Interdisciplinarity</td>
<td>245</td>
</tr>
<tr>
<td>Limitations of the findings</td>
<td>249</td>
</tr>
<tr>
<td>Implications for theory</td>
<td>249</td>
</tr>
<tr>
<td>Implications for practitioners</td>
<td>250</td>
</tr>
<tr>
<td>At the middle-school level</td>
<td>250</td>
</tr>
<tr>
<td>Teachers &quot;integrating the curriculum&quot;</td>
<td>253</td>
</tr>
<tr>
<td>Implications for further research</td>
<td>254</td>
</tr>
<tr>
<td>Conclusion</td>
<td>256</td>
</tr>
<tr>
<td>Notes</td>
<td>257</td>
</tr>
<tr>
<td>Bibliography</td>
<td>261</td>
</tr>
<tr>
<td>Appendix A: Waterfront Timetable and Bell Schedule</td>
<td>275</td>
</tr>
<tr>
<td>Appendix B: Sample of Documents File</td>
<td>276</td>
</tr>
<tr>
<td>Appendix C: Sample Fieldnotes</td>
<td>277</td>
</tr>
<tr>
<td>Appendix D: Sample Interview</td>
<td>284</td>
</tr>
<tr>
<td>Appendix E: Sample Lesson, Trent</td>
<td>292</td>
</tr>
<tr>
<td>Appendix F: Sample Planning Description</td>
<td>294</td>
</tr>
</tbody>
</table>
List of Tables

Table 1: Data sources .......................... 76
List of Figures

Figure 1: Matrix of SBCD variations, from Marsh et al., 1990. . . . 42
Figure 2: Matrix of interdisciplinary collaborative planning . . . 44
Figure 3: Group effectiveness model . . . . . . . . . . . . . . . 46
Figure 4: Models of interdisciplinary planning . . . . . . . . . . 62
Figure 5: Team meetings, topics, and observation details . . . . . 74
Figure 6: Sampling frame . . . . . . . . . . . . . . . . . . . . . . . 81
Figure 7: Coding of team meeting by team
function and level of collaboration . . . . . . . . . . . . . . . 93
Figure 8: Interdisciplinary experiences in inclusion phase . . . . . 158
Figure 9: Major issues in long-term planning . . . . . . . . . . . 168
Figure 10: The Interdisciplinary Judgment Matrix . . . . . . . . 176
Figure 11: Interdisciplinary Judgment Matrix for "MacGyver" . . 179
Figure 12: Interdisciplinary Judgment Matrix for The Vikings . . 184
Figure 13: "Healthy interpersonal processes" . . . . . . . . . . . 201
Acknowledgement

My first acknowledgement is to the members of T8, Catherine, Jeremy and Trent. I thank them for befriending me and assisting me, sharing their knowledge and time freely. I also thank the staff and administrators at Waterfront Middle School, who were supportive and helpful.

I wish to thank committee members, Dr. Donald Fisher and Dr. John Willinsky, for their advice and assistance in this project. I especially thank my research supervisor, Dr. Joe Belanger, who devoted countless hours to helping me through the project.

I also wish to thank my family for their support and tolerance through a long, difficult process. Kerry, Erik, Kelcy, and Taylor--thanks.
"Integrated" or "interdisciplinary" approaches to curriculum have been cited as one solution to the "fragmented" and "irrelevant" curriculum students experience (Beane, 1990; British Columbia, 1990a, 1991; Carnegie Council, 1989; Halsam, 1986; Miller, Cassie, & Drake, 1990; Shoemaker, 1989; Sullivan, 1988). However, much confusion surrounds not only the basic meaning of integrated and interdisciplinary, but also the practical means for achieving curricular integration, represented by teachers' planning of interdisciplinary experiences.

How does a team of teachers, accustomed to planning instruction independently and trained in different subject specialties, plan interdisciplinary experiences as a team? This question formed the focus of this study.

Rationale.

Teachers and schools are struggling to understand and implement interdisciplinary team teaching (Beane, 1991; Erb & Doda, 1989; A. Jackson, 1990; Meichtry, 1990; Rutherford, 1981; Sparapani, Abel, Edwards, & Herbster, 1991). In particular, serious questions have been raised about the degree to which middle school interdisciplinary teams actually create interdisciplinary experiences for their students (Beane, 1990; Bullough & Gitlin, 1985; Johnston, Markle, & Arhar, 1988; Lake, 1989; Whitford & Kyle, 1984). Teachers generally do not know how to plan collaboratively to integrate curricula (Gehrke, 1991).
The purpose of this study was to contribute to the knowledge base about how middle school teams plan interdisciplinary experiences. Also, this study attempted to further current understanding of teachers' professional development through their collaboration on interdisciplinary teams. In order to achieve these purposes, I described and analyzed how a team of middle school teachers from different subject areas collaboratively planned interdisciplinary experiences. As a case study of collaborative planning, this work explored both the experiences of the team and the meanings team members made of their experiences. Thus, teachers' conceptions of interdisciplinarity as well as the procedures and methods they used to plan interdisciplinary experiences were examined. By focusing the study on teacher planning, I examined what Clark (1988) has argued is the instrumental link between curriculum and instruction.

Based on the data from this case study, I argue that the emphasis in the literature on the "interdisciplinary thematic unit" (Erb & Doda, 1989; George & Stevenson, 1988; Little & Shulman, 1984; see also the exemplars in Lounsbury, 1987, and Lipsitz, 1984) diminishes the value of a team's work together. In fact, I argue, the ongoing dialogues that occur in team meetings facilitate meaningful interdisciplinary connections in the day-to-day activities and perspectives of the teachers.

Problem Statement and Exploratory Questions

Background of the Problem

Studies indicate that middle school students can potentially benefit from the interdisciplinary approach to instruction (Arhar, Johnston, & Markle, 1989) and that the collaboration among teachers in the interdisciplinary
approach benefits them (Arhar, Johnston, & Markle, 1988; Erb, 1987; Mills, Powell, & Pollak, 1992). However, despite these potential benefits, when opportunities for collaboration in middle school settings have been provided (i.e., common preparation periods, materials, flexible scheduling), teachers have generally been accused of limiting their collaborative activities to non-curricular issues such as scheduling events and discussing students (Beane, 1990; Bullough & Gitlin, 1985; Johnston et al., 1988; Whitford & Kyle, 1984). While teaching teams function positively and effectively in many respects, rarely does the opportunity for collaboration lead to interdisciplinary experiences for students (Lake, 1989; Whitford & Kyle, 1984). In "the very best teams" from America's exemplary middle schools, there is a "substantial incidence of interdisciplinary units" (George & Stevenson, 1988, p. 12), but in general, such units "are unusual enough to be cited as 'exceptional' examples of middle school practice" (Beane, 1990, p. 19).

The failure to integrate curricula through learning activities (i.e., to create interdisciplinary experiences) in structures designed for that purpose is a significant problem. One possible explanation for the difficulties teachers face in creating interdisciplinary experiences relates to the act of collaborative planning. Alexander and George (1981) note the unique demands of team planning: "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. Teachers who do not know how to plan as a group will not do so" (p. 138, emphasis added). Their comment suggests that a significant barrier to creating interdisciplinary experiences is a lack of knowledge on the part of
practitioners. This study addressed that gap by examining how a team of teachers conceptualized and planned interdisciplinary experiences.

This study examined the following question: How do middle school teachers from different subject areas collaboratively plan interdisciplinary experiences? The report on the study describes and analyzes the collaboration of teamed middle school teachers as they planned interdisciplinary experiences. Undergirding this study is the desire to understand why middle school teachers do not appear to plan interdisciplinary experiences even when they are given the opportunity to do so, or, alternatively, to understand what middle school teachers perceive as planning interdisciplinary experiences rather than merely what researchers expect of interdisciplinary collaboration.

*Exploratory Questions*

The problem suggested a number of initial research questions:

1. How do individual differences among teachers as planners affect their responses to opportunities for collaborative planning?

2. How do teachers' individual conceptions of interdisciplinarity and the purposes of teaming affect team planning activities?

3. What do the team members recognize as opportunities to integrate their subject areas? That is, why do they decide to plan interdisciplinary experiences?

4. What planning processes or models do these collaborating teachers develop or adopt? What form does the planning take? How do these models affect collaborative planning efforts?

5. What planning concerns do collaborating teachers express and how do they deal with these concerns? At another level, what concerns manifest themselves in team meetings? How do teachers' concerns affect opportunities to integrate subject matter?
6. How do characteristics of the school (such as school norms and official policies) influence collaborative planning and the team’s response to opportunities to integrate subject areas?

Each of these questions was examined through analysis of data collected in the field over the course of one school year.

Research Design and Methods

I conducted this investigation using an in-depth case study design that employed data collection through long-term participant observation, document analysis, and interviewing (Yin, 1989) as a means of finding how a middle school team conceptualizes and plans interdisciplinary experiences. The study focused on a single interdisciplinary teaching team in a middle school in southwest British Columbia.

The research design builds on a symbolic interactionist (Blumer, 1969) perspective. Denzin (1989) articulates the key assumptions underlying this perspective as 1) that social reality is a social production, 2) that humans are capable of self-reflexive behaviour, and 3) that humans interact in taking a particular standpoint. Thus, the interactions of team members with each other, the staff, the students, and the researcher are the focus of interest. The research design assumes that by sharing in the world of the team, "a rich, concrete, complex, and hence truthful account of the social world being studied is possible" (Van Maanen, 1988, p. 3).

Selection of Research Site

Waterfront Middle School (a pseudonym) came to my attention through a
contact I made at the Ministry of Education. The school was known to be experimenting with teams creating integrated curricular units, and it had been funded to conduct this work. One of the funded teams, made up of three teachers, became the focus of this case study after I interviewed an administrator and team members to determine if they matched the criteria I had established for a purposeful sampling (see Chapter Three).

The Waterfront team--Jeremy, Trent, and Catherine--accepted my presence as a participant-observer in their classrooms, their team meetings, and in various informal situations such as the staff room. I participated in team meetings by limited discussion and by producing minutes of team meetings throughout the year. The team planned a number of interdisciplinary experiences for their students, though they did not create a single, clearly-articulated "interdisciplinary thematic unit" such as the exemplars in Lipsitz (1984) or Lounsbury (1987). This was a deliberate choice for them, based on the conception of interdisciplinarity the team developed over the course of the year. I interpret this decision not as a failing or omission, but as the expression of this team's understanding of what makes for meaningful interdisciplinary connections.

Data Collection

As a participant-observer, I attended regular and special team meetings throughout the 1991-92 school year. I observed the team in a variety of contexts--individual classrooms, staff meetings, informal interactions in the staff room, school assemblies and activities--for some ten months. I examined documents produced by team members, including lesson plans and
student handouts and guides, and documents from the school (handbooks, newsletters) and district (annual reports). I involved the team members in corroborating information by providing them with written descriptions to which they responded orally or in writing and with minutes from the team meetings. Furthermore, I interviewed team members and school officials numerous times over the course of the year. Specific features of the research design are explained further in Chapter Three.

**Delimitations of the Design**

In order to examine collaborative planning of an interdisciplinary unit, I have established a number of delimitations for this study, from which arise certain limitations relating to generalizability. The focus on a single interdisciplinary team, while allowing in-depth case study, does not permit generalization to a population (Yin, 1989). I have, therefore, created a portrait of the case study with enough detail to allow readers to determine its applicability to their own situations (Connelly, 1978; Kennedy, 1979; Lincoln & Guba, 1985).

The scope of this study establishes a delimitation of research concern: I focused on collaborative planning, recognizing that a host of other issues may arise in the collaborative activities of teachers. Furthermore, while students may be dramatically affected by interdisciplinary activities, the study was limited to a focus on teacher planning (which entailed observation of classroom interactions, though not as a primary concern).

Finally, the methodology--fieldwork research--involves certain delimitations. Specifically, I did not intervene in the teachers' planning processes, but attempted to study what occurred, recognizing that my presence
certainly influenced their work (by, for example, my presence reminding the teachers of their commitment to meet regularly). While I wanted, at times, to urge the team to plan more interdisciplinary experiences, I carefully monitored my actions to make sure I did not do so. Another delimitation of fieldwork research involves the lengthy personal contacts which demand patience and sensitivity not only to research issues, but also to interpersonal dynamics.

Significance of the Study

Despite the emphasis on collaboration (Little, 1990b), interdisciplinary teaming (Erb, 1987), and curricular integration¹ (Jacobs, 1989) in current literature, a large gap exists in the research regarding collaborative planning for interdisciplinary teaching. Gehrke (1991) describes the frustrations teachers face in attempting to plan interdisciplinary activities. She sees teachers as lacking experience, exemplars, and established planning processes:

[Teachers have vague notions about curricular integration because] most teachers have never seen or experienced an integrative curriculum; they have few, if any, images of the forms it can take. They have no curriculum guides to turn to for exemplars. Further, they have no processes to create the curriculum and no strategies for ensuring that integrative learning experiences would result from their efforts. (p. 107)

Little and Shulman (1984) note a lack of research on teacher development at the middle school level. Commenting on the difficulty middle school teachers have in collaboratively integrating subject matter, Little and Shulman cite a study by Molitor and Dentler (1982): "Even with formal team organization and scheduled time, 'most of them simply did not know how to
do it and had no one to tell them" (p. 28). Working on interdisciplinary teams "runs counter to teachers' usual experience; most were accustomed to working independently" (Little & Shulman, 1984, p. 64).

Teachers, then, don't know how to plan together to integrate curricula, and lacking a strong research base, theorists don't know how to help them. Pressed to create interdisciplinary experiences (the "interdisciplinary thematic unit"), middle school teachers face a need for further understanding of this complex task, and an understanding that goes beyond a conception of the problem as merely lacking a series of steps or a planning technique. The limited studies dealing with collaborative planning (see Chapter Two and Gehrke, 1991, Marin, 1988, and Stein, 1978) offer little help for practitioners or theoreticians, largely because these studies fail to examine collaborative planning of interdisciplinary experiences in an actual middle school context.

The knowledge gains from this case study offer a starting point for building a theoretical base for practitioners and researchers addressing the problem of collaboratively planning interdisciplinary experiences. Grounded in the experiences of a practicing middle school team, the results of this study raise questions about current conceptions of interdisciplinary activities. This dissertation argues for reconceptualizing the collaborative planning of interdisciplinary experiences not as the creation of special thematic units ("curriculum way-stations," according to Capelutti and Brazee, 1992), but as an ongoing process, a dialogue among subject specialists. This dialoguing encourages making interdisciplinary connections among subject areas in the day-to-day activities of a given class. Short of the complete abandoning of the traditional curricular organization recommended by some (Beane, 1990), such
an approach offers professional development for middle school teachers within the existing realities of their occupational culture.

At another level, the collaborative planning of interdisciplinary experiences in middle schools provides a window onto collaborative practices more generally. Collaboration and collegiality offer the promise of restructuring schools in positive ways (Little, 1990b), but contrast sharply with the isolation typical of most schools (Feiman-Nemser & Floden, 1986; Lortie, 1975). Norms of privacy and isolation prevail in schools and, as Lake (1989) writes, "with such norms governing their professional lives, it is not surprising that--however much they claim to want collegiality--teachers may seem uncomfortable when the opportunity arises" (pp. 7-8). The knowledge gains of this case study, in exploring a specific collaborative interaction, provide data to help educators determine how professionals trained for and accustomed to working within structures emphasizing autonomy and isolation function in a collaborative task. Also, this study adds to the knowledge base regarding the interaction of collaborative groups with a school at large.

Finally, in focusing the case study on planning, this work adds to the knowledge base regarding teacher planning in general. The collaborative context, I argue, provides researchers access to planning concerns of teachers. Moreover, team planning enhances the supportive role of teacher planning and broadens teachers' understanding of the instructional context they face.

Definition of Terms

Interdisciplinary or integrated, applied to curriculum, raises a host of differing interpretations. Pring (1973) distinguishes between the terms in this
way: "The very notion of 'integration' incorporates the idea of unity between forms of knowledge and their respective disciplines. 'Interdisciplinary' on the other hand simply refers to the use of more than one discipline in pursuing a particular inquiry" (pp. 135-6). However, current use of the terms often equates *interdisciplinary* and *integrated* curricula (see, for example, Ackerman, 1989). For the purposes of this investigation, I used Heidi Jacobs's (1989) definition of *interdisciplinary*: "A knowledge view and curriculum approach that consciously applies methodology and language from more than one discipline to examine a central theme, issue, problem, topic, or experience" (p. 8). Following the usage of the teachers in this case study, I do not distinguish between *integrated* and *interdisciplinary* curricula2.

In Jacobs's (1989) definition, then, *discipline* emerges as a key idea. Recognizing both the difficulty of clearly determining what constitutes a discipline (see Soltis, 1978) and its general use in schools, I equate *discipline* with *school subject*.

I used the word *experience* instead of *unit* as a result of the investigation. *Units* entail certain expectations about size and completeness (beginning, middle, and end) that may or may not be important to the interdisciplinary work a team plans. *Experience, as* the American Heritage Dictionary defines it, is an "activity or practice through which knowledge or skill is gained." Thus, interdisciplinary experiences are activities or practices in which the language (concepts) or methodology of more than one subject area are employed to examine a central theme, topic, or problem.

Goldstein (1969) defines *team planning* in this way: "It is the concerted, organized, regularly scheduled effort on the part of a team or group of
teachers to meet and plan the program of studies for a group of students" (p. 272, original emphasis). As current research makes clear, planning is not confined to any regular schedule or setting (see McCutcheon, 1980, 1981). Thus, team planning includes regular meetings for the purposes of designing instructional activities as well as informal contacts and decision-making on the part of the teachers on the team. I take planning to be, as Clark and Peterson (1986) identify as one tradition of planning research, what teachers do when they say they are planning.

Collaborative is an adjective describing a continuum of collegial relations among professionals (Little, 1990b). Little acknowledges that collaboration can occur in a variety of forms, ranging from relatively independent ("storytelling and scanning") to interdependent ("joint work") forms. The essential element of collaborative is the idea of co-labouring: to some extent working together rather than alone.

Overview of the Dissertation

Chapter Two of the dissertation examines the literature related to this study. In particular, I attempt to bring out the connections between the three pivotal concepts in the study: teacher planning, collaboration, and interdisciplinary approaches to instruction. How, for example, can the notion of collaboration illuminate our understanding of teacher planning? What sorts of questions can we answer about collaboration through its juxtaposition with teacher planning?

Chapter Three outlines the research design and methodology. Based on
deficiencies identified in the literature review, I describe a research methodology that involves fieldwork or interpretive research (Erickson, 1986). I list data sources and methods of data collection, and I explain how the data were analyzed.

Chapter Four presents a description of the teaching team at Waterfront Middle School.

Chapter Five presents the findings of the study, organized as answers to the exploratory questions.

Chapter Six concludes the dissertation with a summary and discussion of the findings, including implications for practitioners and researchers.
Chapter 2
REVIEW OF THE LITERATURE

The literature underlying this study addresses three general issues: teacher planning, collaboration, and interdisciplinary approaches to curriculum. The review begins by examining the major studies on teacher planning. The second section examines research on teacher collaboration and collegiality and the reasons for examining collaborative planning in particular. The final section addresses the issue of what is meant by an interdisciplinary approach to teaching.

Teacher Planning

The literature on teacher planning is examined by exploring some of the assumptions about the topic that have guided research and the findings arising from different research approaches. Since others have written thorough reviews of teacher planning (Borko & Shavelson, 1983; Clark & Peterson, 1986; Shavelson & Stern, 1981), this review concentrates on questions relating to collaborative planning: what gaps in the research might a study of collaborative planning fill? and what can the research tell us about collaborative planning?

Assumptions

The objectives-first model of planning derived from Tyler (1949) has dominated teacher training to such an extent that nearly every writer on teacher planning feels compelled to address the inadequacy of this model and its neglect by practicing teachers. Tyler's work divided the development of curriculum into four activities: selecting objectives, choosing activities to achieve these
objectives, organizing the learning activities, and evaluating whether or not objectives have been met. The planning model derived from this, known as the "rational means-end" model (Cain 1989) became the standard for training educators to plan (Clark & Peterson, 1986; Shavelson & Stern, 1981). As Shavelson and Stern report in their review of research on teacher thinking, this prescriptive model is consistently not followed by practicing teachers. This finding has been corroborated in numerous studies (Brown, 1988; McCutcheon, 1980; Peterson, Marx & Clark, 1978; Yinger, 1980).

P. W. Jackson (1968/1990), in his exploration of life in classrooms, raises a serious question about teacher thinking in the rational means-end model:

The immediacy of classroom life, the fleeting and sometimes cryptic signs on which the teacher relies for determining his pedagogical moves and for evaluating the effectiveness of his actions call into question the appropriateness of using conventional models of rationality to depict the teacher's classroom behavior. (p. 150)

In this, Jackson (1968/1990) appears to challenge assumptions about teachers as rational professionals (Shavelson & Stern, 1981). Jackson does point out that there are times when teachers engage in quality thinking. "During periods of solitude, in particular, before and after his face-to-face encounter with students, the teacher often seems to be engaged in a type of intellectual activity that has many of the formal properties of a problem-solving procedure" (p. 150). Based on this distinction between teacher thinking in action as opposed to preparing a lesson, Jackson articulated the "preactive" and "interactive" phases of teaching.

Clark and Peterson (1986), developing Jackson's ideas further, divide teacher thinking into three interdependent phases: 1) preactive/postactive, 2) interactive, and 3) theories and beliefs. While some have argued that such discrete and linear categories are not faithful to the complexity of teachers'
cognition (see, Marin, 1988), such distinctions are useful for furthering understanding.

Research on teacher planning, then, builds on an assumption that one type of thought teachers engage in is planning, though researchers have found this planning does not conform to Tyler's (1949) rational means-end model. Furthermore, while teacher thinking goes on in other phases, there is a point outside of the instruction—the preactive/postactive phase—where teacher planning is "qualitatively different" (Clark & Peterson, 1986, p. 258), whether or not this results in a written product. Finally, teacher planning affects instruction: "Planning shapes the broad outline of what is possible or likely to occur while teaching" (Clark & Peterson, 1986, p. 267).

Survey Research and Teacher Planning

The picture that emerges from survey research on teacher planning indicates that 1) teachers are not systematic in their planning, 2) they do not consider objectives first, 3) they consider a variety of factors in planning, and 4) they make various kinds of decisions as they plan.

Taylor's (1970) research involved a three-stage study of how teachers plan. First, he held open-ended discussions with groups of teacher leaders. Second, he evaluated 80 course syllabuses voluntarily submitted by schools. Third and most important, he administered a survey to teachers, most of whom were teacher leaders. The survey asked teachers to comment about their role in curriculum planning and to rate 12 issues in order of importance.

Taylor (1970) concludes from the discussions that teachers aren't very systematic in their planning. His survey research highlights the prominence of student needs, abilities and interests as factors in planning, closely linked to
concern with subject matter and aims. This, set against the dominant model of 
objectives-first planning, was startling enough for Taylor to devise his own 
model of planning for teachers, which locates objectives in the third step. 

Zahorik (1975) surveyed 194 teachers (kindergarten through adult education) 
from a large city and suburbs about their preactive planning. Zahorik requested 
teachers to list in writing the decisions they made prior to teaching in the order 
they usually made them, and, for those teachers who made decisions about 
objectives and activities, to give examples. He tabulated the frequency of various 
kinds of decisions and the place decisions were likely to be sequenced. For 
example, he found that the most commonly used category was activities (81%), 
though only 3% of the teachers said they made that decision first. In his sample, 
70% of the teachers listed content as one of the decisions they made, and 51% said 
they considered this first, making this the most common starting point of 
planning. 

Zahorik (1975) draws five conclusions from his study: 1) objectives are not 
important in planning; 2) activities are important, though rarely the first 
decision made; 3) content is one of the most important decisions made and most 
often the first decision; 4) fewer than a third of the surveyed teachers made 
decisions about evaluation, diagnosis, organization, and instruction; 5) few 
differences exist between teachers of differing years of experience or from 
different subject matters (p. 137). 

Zahorik's (1975) survey approach, like Taylor's (1970) before him, has a 
number of limitations. If, as various researchers contend, planning is largely 
mental (Borko & Niles, 1987; McCutcheon, 1980, 1981) and heavily influenced by 
planning done at the beginning of the year (Shavelson & Stern, 1981), one might 
question the validity of a survey approach. Asking teachers how they plan apart 
from the act of planning may not give teachers access to the answers. Hargreaves
(1989) challenges the usefulness of survey methods for this kind of research:

Simply put, what people write 'in the cold' as a response to a brief item on a questionnaire, is often a poor document of their everyday working perspectives. If researchers want to examine the complexity of decision-making processes and people's perceptions of those processes, the questionnaire is therefore likely to prove a rather clumsy, inaccurate and imprecise tool. (p. 26)

To illustrate this, consider that fewer than a third of Zahorik's teachers mentioned instructional decisions (teacher behaviours and strategies) or organizational decisions (grouping of students, use of space and time). It seems unlikely that two-thirds of these teachers don't consider teaching strategies or use of time. This finding appears to be a limitation of the survey method rather than an accurate finding. The phrasing of Zahorik's question did not allow teachers to speak of the influence of previous experience on planning, yet Brown (1988) found that among the teachers she studied, the vast majority relied on previous plans for all forms of planning. Can a "planning model" that excludes the effects of previous experiences (there was no category for this) be useful?

Even setting aside concerns about the survey approach, one wonders how useful Zahorik's (1975) findings are in helping us understand teacher planning. The fact that 81% of his teachers decide about activities tells us very little. What do they decide about activities? What influences how they decide? Do activities retain this importance in collaborative planning? These questions need to be explored more deeply than survey research allows.

Clark and Yinger (1979) surveyed approximately 80 elementary teachers about their planning. In their preliminary report of findings, they indicate one further finding that bears on the study of collaborative planning: when team-teaching is involved, planning is more explicit and demands more lead time than
individual planning. This finding raises questions in relation to collaborative planning at the middle-school level: Does planning become more explicit among collaborating team members? Does collaborative planning involve more time than individual planning?

A more recent survey of teacher planning conducted by Sardo-Brown (1990) resembles Zahorik's (1975). In her survey of 33 teachers, all from the same district and all in the same master's degree program, Sardo-Brown administered a multiple-choice questionnaire on what factors influence teachers in planning and an open-ended questionnaire asking teachers to describe their decision-making at the five levels of planning (see Yinger, 1980). Her findings were largely consistent with those described in the case-study section below. However, she did note several findings that contradicted other research, including her own (Brown, 1988). These discoveries include the following: 1) teachers decide on objectives at all planning levels (yearly, term, unit, weekly, and daily); 2) teachers do create new units, though usually using pre-packaged objectives; 3) most teachers make term plans; 4) approximately 25% of the teachers she surveyed routinely consulted other teachers in making plans. Significantly different from her earlier research (Brown, 1988), Sardo-Brown noted that just over half of the teachers she surveyed used unit notebooks, though 80% of the secondary teachers did so.

Sardo-Brown's (1990) sampling raises some questions about generalizability. The respondents were not volunteers (they were required to respond as a part of their graduate program), but they were not randomly chosen. Since all teachers worked in the same district, all were required to use Madeleine Hunter's ITIP method of lesson planning, and all were currently in the same master's degree program, the case for external validity seems weak. Moreover, as with other
survey research into teacher planning, Hargreaves's (1989) question about whether the brief responses to questionnaires can get at everyday working perspectives seems important.

Survey research reports that activities and content decisions appear to be far more important to teachers than objectives. In relation to collaborative planning, a sensitizing concept (Hammersley & Atkinson, 1983) becomes the teaching team's focus on such factors as activities, content, and needs of the students. What role will objectives take in the collaborative environment, particularly if collaborating teachers have different views on the importance of objectives? In collaboration, to what extent will Zahorik's contention that subject matter does not affect planning style hold true? How will activities figure in the collaborative planning of interdisciplinary units? What priority will be accorded to content when different content areas are involved, as is the case with interdisciplinary experiences?

*Experimental Research and Teacher Planning*

Experimental research on teacher planning has asserted a relationship between planning models and the resulting instruction and raised questions about the potential negative impact of planning on teaching.

Experimental studies of teacher planning have offered some support to the idea that the planning model teachers use affects the instruction that follows. Frey, Frei, and Langeheine (1989) devised a study that showed that the model of development applied in building a curriculum influences the resulting curriculum, although the three curricula they designed were created for experimental, not teaching, purposes.

Cain (1989) explores much the same question as Frey et al. (1989), but grounds her experiment in the work of two teachers functioning in real planning
situations. In order to test the influence of different planning models, Cain trained two student teachers to plan according to the models and then she observed the results. Cain trained one teacher to use the "rational means-end" model of planning, the Tyler rationale. She trained the second teacher to use a "Creative Planning Model" Cain had devised, patterned after creative processes of writers and architects. This later became the "Creative Educational Design Model," consisting of preparation, improvisation, and contemplation (Cain, 1991). The model, according to Cain, "encourages a recursive thinking strategy intended to help preservice teachers consider many educational design variables that affect student learning" (1989, p. 7).

Cain's (1989) results demonstrate that experimental research can contribute to our understanding of teacher planning. Cain found that her subjects created significantly different learning environments, and her analysis of the teachers' thoughts (through interviews and documents) attributed this difference to the competing models of planning. The creative planner knew students well, and trusted them to be "experts." The rational means-end planner created a situation "driven by her desire to help students meet her stated objectives" (p. 25). She didn't know her students or assess their progress well, and she developed few ways of helping students.

One aspect of Cain's (1989) study causes some concern. Cain says both teachers planned as they had been taught. Yet the resounding claim of nearly every study on teacher planning is that virtually no teachers actually use the rational means-end model Cain taught one of her subjects. True, most preservice teachers learn this model, but they apparently abandon it very quickly. Perhaps Cain's subject, like many student teachers, remained temporarily faithful to the model while she was in the position of being evaluated as a
student. But if practicing teachers forsake this model, Cain's comparison loses much of its value beyond the specific application to preservice teachers, and we already had reason to question training student teachers in a model that virtually no teachers find useful, though, as some researchers point out (Clark & Peterson, 1986; Borko & Niles, 1987), such a model may provide the foundation on which teachers build personal planning styles.

The experiments of Cain (1989) and Frey et al. (1989) confirm Clark and Peterson's (1986) observation that planning (in this case, planning models) shapes the resulting instruction. In light of this, what planning model or process will collaborating teachers adopt in their work together? How might such a model affect the resulting interdisciplinary experiences?

Some experimental research on teacher planning has raised the possibility that planning has a negative impact on instruction. If this were true, one would have grounds to question the value of collaborative planning; however, there is cause to question the finding.

Zahorik (1970) conducted a study where "planning" teachers were compared with "nonplanning" teachers for their "pupil sensitive" behaviour. Teachers who had not planned used a higher percent of "authentic data extenders" (elaboration through students' input) than those who had planned. Zahorik concludes that a lack of planning "results in data extension that is more honest in the sense that it is an attempt to understand and deal with the pupil's idea" (p. 149). Zahorik's tentative (though frequently cited) explanation of this paradox is that "planning makes the teacher's thinking rigid and puts him on a track that is nearly derail-proof" (p. 149).

Are teachers who plan less sensitive to their students? If this is true, the value of planning comes into question. In the context of collaborative planning,
such a finding would suggest that students might profit if their teachers did not plan interdisciplinary experiences, but conducted them spontaneously.

Zahorik's (1970) experiment deserves examination. The artificial teaching situation depends on two unacceptably extreme conditions. Grade-four teachers given two weeks to plan a 30-minute (recorded) lesson are set in opposition to grade-four teachers asked to do the same thing with a few seconds notice. Neither position tells us anything about the instructional planning teachers typically engage in. Furthermore, the focal point of Zahorik's measures, pupil-sensitive behaviour, clearly establishes a predisposition favouring unplanned lessons. The teacher who has just heard the topic of the lesson a few seconds earlier will no doubt seek student participation, if only as a way to fulfill the time requirement of the lesson or gain an opportunity for thought. The teacher who has worked for some two weeks on a showcase lesson likely would find himself or herself struggling to fit in the information, whether or not that teacher believed in the importance of pupil-sensitive behaviour. The experiment seems unsound. Zahorik's suggestion of a negative impact from planning is not warranted.

Another experimental study, by Peterson, Marx and Clark (1978), appears to corroborate Zahorik's (1970) claim that planning has a negative impact. In their study of 12 teachers and 288 students, all paid volunteers, Peterson et al. asked how planning differences among teachers affect student attitudes and achievement. Three days before beginning, the teachers were given a list of 11 objectives and some social studies text material (including slides) and told to teach any way they wished. They were to teach three 50-minute lessons to three different random groups of eight students on subsequent days. At the beginning of each day, teachers had 90 minutes to plan that day's teaching. The experimenters collected data using a think-aloud protocol. At the end of each
day, the students involved completed a multiple-choice test, an essay test, and an attitude inventory.

The differences found among teacher planning styles appeared to relate to differences in teachers' cognitive styles, with teachers scoring high on verbal or low on conceptual measures found to be "productive" planners. The researchers found that planning productivity (a high count of planning statements) was positively correlated with student achievement on day one, but negatively on subsequent days. This appears to confirm Zahorik's (1970) concern that planning may be harmful. As Peterson et al. (1978) put it,

productive planners in this study spent much of their planning talking about the subject matter. After the first day of teaching, this extra planning was counter-productive with regard to student achievement, and actually was associated with negative student attitudes toward the subject matter, teacher, materials, and selves as learners. (p. 429)

At first, this conclusion appears again to challenge the value of planning. Subsequent research (McCutcheon, 1980, 1981) has shown that the richest aspect of teacher planning is mental, and it goes on all the time, not just during preparation periods. In the Peterson et al. (1978) study, teachers were told not to plan outside of the 90-minute allotment each morning. While that works well for documentation, it does not resemble the realities of teacher planning. Indeed, the 90-minute allotment in itself is a questionable idea. On the first day, it may have been too little time. For days two and three, with the lesson remaining the same, it may have been far too much time. Brown (1988) used a similar think-aloud protocol with her subjects, and found they took from five to 10 minutes to plan a lesson. What the researchers take to be counterproductive planning productivity may have been nothing more than simple boredom. Planning productivity noted by Cain (1989), in contrast, was related to positive
effects on student attitudes. The suggestion, then, that teacher planning has a negative impact on students appears to arise from the artificial constraints of experimental research.

Case Study Research and Teacher Planning

Case study research has produced the most valuable findings regarding teacher planning. In this, case study research not only adds most to the knowledge base in the realm of teacher planning, but also suggests the most fruitful research methodology. The findings of case study research include the following insights:

• teacher planning is largely mental;
• teacher planning is influenced by knowledge and skills, attitudes and beliefs, and perceptions of the teaching context;
• teachers plan for instructional activities and teaching routines;
• teachers plan at five levels which are "nested" in one another: yearly, term, unit, weekly, and daily;
• curriculum guides, texts, and minimum competency testing influence planning;
• unit notebooks are a key feature of secondary teachers' planning.

McCutcheon (1980, 1981) examined teacher planning among elementary teachers. She used four researchers and 12 teachers to study planning for lessons in elementary school classrooms, grades 1-6. She collected data from observations, interviews, and various document analyses.

McCutcheon (1980, 1981) found that teachers used abbreviated written plans much as a person might use a shopping list: as a memory jogger. More important than the written plans, "mental planning" emerged as a key to
understanding how teachers plan. In light of this, one might wonder about the role of mental planning in the collaborative situation. While teachers will no doubt continue to plan mentally, is it possible that the collaborative planning environment might bring some of these interior dialogues to surface?

McCutcheon (1981) lists three main functions of mental planning: it permits altering a plan if problems are foreseen, it provides psychological support, and it provides time to fill in details and decide upon alternative strategies. When teachers collaborate on educational plans, these functions of mental planning may require interpersonal communication. The study of collaborative planning offers an opportunity here to make explicit many of the implicit notions teachers have about planning.

In addition to this concept of mental planning, McCutcheon's (1980, 1981) research documented several influences on teachers' planning. Teachers' knowledge and skill, attitudes and beliefs, and perceptions of the context of teaching influenced their planning. This finding suggests a question for the study of collaborative planning of interdisciplinary experiences: when not only different individuals, but different individuals representing different disciplines plan together, how will differences in these three areas interact? Will compatibility of these differences be at issue?

One of McCutcheon's (1980, 1981) recommendations was to provide teachers with more opportunities to collaborate in their planning. She views collaboration as a way to end isolation and to correct such problems as textbook errors and teacher stereotyping of people groups. Her study itself offers no evidence in support of these claims. In fact, McCutcheon (1980) found that when teachers did plan collaboratively, their focus was on shifting children among groups rather than on possible activities for instruction (p. 13). Still, her study
Yinger (1980) explored three questions in a study of elementary teacher planning: 1) What does teacher planning look like in a natural, long-term setting? 2) What types of problem-solving and decision-making processes do teachers engage in? 3) What models of planning can be developed from this? Yinger chose to study one elementary teacher in depth to answer his research questions. Using participant-observation and "process-tracing," Yinger worked with one teacher for five months. During deliberate planning sessions, he recorded the teacher's thinking aloud.

Yinger (1980) found two basic areas of planning in this teacher's work: planning for instructional activities and for teaching routines. The prominence of activities "as the basic structural units of planning" (p. 111) appears to corroborate Zahorik's (1975) finding (also in Parker & Gehrke, 1986). Routines, Yinger writes, were mechanisms that the teacher used to establish and regulate activities and to simplify planning. Routines played a major role in the teacher's planning. She used them so often that her planning could be described as decision-making about the selection, the organization, and the sequencing of routines. (p. 111)

For teachers who function as routine-makers, what happens when they plan collaboratively? Do routines survive? Do they compete with colleagues' routines? What impact do the routines exert on group planning? Yinger (1980) restricted his study to a single teacher and therefore did not consider such questions. Research on teacher planning has yet to investigate the impact of teacher routines on collaborative planning. Yinger claims two positive effects of the use of routines: they increase teacher flexibility and effectiveness by reducing time and energy needed for planning and they increase predictability by decreasing the complexity of the classroom for students. These benefits might
reasonably be desired in a team teaching situation. Yinger's study, then, raises another important consideration for examining collaborative planning: what routines does the team devise in collaborative planning and what role do these routines play?

Yinger (1980) identified five levels of planning: yearly, term, unit, weekly, and daily. This raises a question regarding collaborative planning: at what level(s) of planning will teachers collaborate? He also developed a three-stage process model of planning consisting of problem-finding, problem formulation and solution, and implementation, evaluation, and routinization. His model became the basis for Cain's (1991) stages of the creative educational design model.

One of the most significant studies related to collaborative planning among middle school teachers was conducted by Brown (1988). She studied the planning of 12 middle school teachers, all volunteers from a single district, and all associated with teaching teams. Brown tape-recorded interviews and analyzed written plans of all teachers. She conducted one interview with each teacher at each level of planning (yearly, term, unit, weekly, daily); at the unit level, she used written and Likert-type questionnaires; she used think-aloud recordings at the daily level of planning.

Brown's (1988) findings add an important perspective to our understanding of teacher planning. As Yinger (1980) and McCutcheon (1980, 1981) found, Brown's teachers followed a "nested" planning pattern, with plans increasing in specificity as they move from yearly to daily levels. Unlike elementary teachers, Brown's subjects did not engage in term planning, a finding her later survey research (Sardo-Brown, 1990) questioned. Also unlike the elementary teachers in McCutcheon's (1980) study, these teachers all made written unit plans. Brown confirmed Zahorik's (1975) finding on the importance of activities to planning,
though her study found that no teachers decided on content first (as opposed to 51% in Zahorik's study). Brown found that team membership influenced instructional planning, even though there was no evidence of team teaching and her teachers, like those in McCutcheon's (1980) study, "conveyed that they did little cooperative instructional planning" (p. 83), again, a finding inconsistent with her survey research (Sardo-Brown, 1990).

The teachers in Brown's (1988) study reported a number of influences on their planning: curriculum guides, texts, and minimum competency testing affected all levels of planning. In think-aloud protocols, all teachers identified seven influences: what worked before, student ability, student interest, school calendar, where yesterday's class left off, number of minutes in the period, and curriculum guide objectives. Given the importance of previous experiences, Brown calls for researchers to attend to the development of unit notebooks. The central place of this notebook "implies the need for special help, resources, and time for teachers to develop plans in their subject" (p. 84) and argues for more help being offered to teachers during their early years of teaching, when they develop such units. In her later survey research (Sardo-Brown, 1990), she notes both less reliance on unit notebooks and a more evenly-spread development of them over the course of a career. Teachers who devise interdisciplinary units will have no such "unit notebooks" initially. Thus, the development of such units may prove either to be an impediment to collaboration, or, if successful, an excellent opportunity to witness teacher planning in action. Her finding raises a further question: can developed "unit notebooks" become the basis for interdisciplinary experiences?

Brown's (1988) study casts some doubt on teachers as complex thinkers. She found that the teachers she studied never created new units and rarely
developed new lessons. Also, teachers did not form plans based on their own goals, but fit into school schedules and curriculum guides. Furthermore, although educators have called for interdisciplinary instruction in middle schools, "teachers seemed to give little consideration to interdisciplinary instruction during planning" (p. 78). In brief, Brown concludes that "the findings of this study contradict the notion that teachers are highly independent in making instructional decisions" (p. 85), being governed instead by school policies, curriculum guides, texts, and schedules. Her conclusion raises a further question for the study of collaborative planning of interdisciplinary experiences: To what extent do collaborating teachers act as independent decision makers in their work together?

**Summary: Teacher Planning**

Teachers engage in something they call planning apart from the decisions they make during interactive teaching (Clark & Peterson, 1986). Teachers plan at various levels (yearly, term, unit, weekly, daily) which are "nested" in one another (Brown, 1988; McCutcheon, 1980, 1981; Yinger, 1980). Contrary to the most commonly accepted model of planning, teachers do not begin by formulating objectives (Brown, 1988; McCutcheon, 1980, 1981; Sardo-Brown, 1990; Taylor, 1970; Yinger, 1980; Zahorik, 1975). Teachers generally plan around activities (Brown, 1988; Parker & Gehrke, 1986; Yinger, 1980; Zahorik, 1975), though it is not clear exactly how teachers use activities in planning, and other factors such as content and materials (Brown, 1988), students and instructional context (Borko & Niles, 1987; Taylor, 1970) are important considerations. We know that teacher planning is influenced by a variety of factors, including the teacher's personal beliefs, the teacher's knowledge and skills, and the teacher's perception of the teaching context (McCutcheon, 1980, 1981). Routines (Yinger,
and previous experiences with a given unit (Brown, 1988) also exert powerful influences on teacher planning. For secondary teachers, unit notebooks or plans constitute crucial sources for all levels of planning (Brown, 1988; Sardo-Brown, 1990).

A major difficulty in understanding teacher planning is that much of it is "mental," done at odd times throughout the day, and it may or may not result in written plans (Borko & Niles, 1987; McCutcheon, 1980, 1981). The models of planning teachers use appear to influence the resulting plans (Cain, 1989, 1991; Frey et al., 1989; Sardo-Brown, 1990). While some experimental research has indicated that planning may have negative effects (Peterson et al., 1978; Zahorik, 1970), the evidence for such a conclusion is weak.

Researchers have not explored collaborative planning of teachers to any great extent (see Stein, 1978, below). We know, for example, that team planning requires more explicit work and may require more time (Clark & Yinger, 1979). Team membership appears to influence teacher planning (Brown, 1988), though it is not clear how. Researchers have suggested potential benefits of collaborative planning (McCutcheon, 1980), but these have yet to be investigated. We do not know how the influences on individual teacher planning will impact collaborative planning.

A good deal of research on teacher planning depends on teachers' reflections on the process or their articulation of mental acts during planning. The taken-for-granted assumptions and routines of planning have little chance of surfacing in this context. Collaborative planning offers an opportunity for researchers to gain access to assumptions and routines as the interior dialogue of teacher planning moves to the outer forum of collaborative planning, though we must not assume, as some have (Stein, 1978), that "teaming makes individual
planning manifest" (p. 4). In studying collaborative planning, the research can follow the recommendation of Clark and Peterson (1986) to move away from "narrow comparisons" between what was planned and what transpired and to "think more broadly about what teachers are accomplishing in their planning time" (p. 262). This broadening allows planning to be viewed beyond its functional boundaries. That is, planning, especially collaborative planning, can be seen as potentially a source of growth for the teachers, not merely as a technique of devising lessons.

Clark and Peterson (1986) see the most obvious function of planning as a modifying of the curriculum to meet the circumstances of a given teaching situation. In the context of interdisciplinary collaboration, this linking process becomes even more significant, since teachers must make interpretive decisions as they adapt curricula and create new units. Before examining the what the literature says about that interdisciplinary focus, literature on teacher collaboration is examined.

Teachers in Collaboration

Collaborative planning of interdisciplinary experiences builds on the idea that teachers (and instruction) can benefit from working together. Collaboration, teachers working together, has been advanced as a principle that will radically improve education (Bird & Little, 1986; Hargreaves, 1989; Little, 1982; McCutcheon, 1981; Rosenholtz, 1989). At the same time, researchers acknowledge that collaboration is a rare phenomenon in the schools, which exhibit a culture of isolation and determined autonomy (Ashton & Webb, 1986; Darling-Hammond, 1990; Goodlad, 1984; Hargreaves, 1989; D. Hargreaves, 1980; Lake, 1989; Little, 1990c; Lortie, 1975; Pellegrin, 1976; Rosenholtz, 1990). This
portion of the review examines research on collaboration among teachers with the following focal points: what are the benefits and risks of collaboration? what do we know specifically about collaboration among middle school teachers? and, what can we infer about collaborative planning? A section on literature from organizational theory is included to create a conceptual framework for examining collaborative planning on a team.

**Benefits of Collaboration**

Little (1982), in defining collaboration, writes that the phrase "'work together' is most usefully elaborated as an array of specific interactions by which teachers discuss, plan for, design, conduct, analyze, evaluate, and experiment with the business of teaching" (p. 338). Collaboration promotes collegiality, a characteristic strongly associated with successful schools and successful teachers (Rosenholtz, 1989). Rosenholtz and Kyle (1984) write, "In most effective schools--schools where the learning of both teacher and students is greater--teachers collaborate" (p. 14).

Little (1982) conducted a descriptive case study on teacher collaboration. Using standardized achievement scores on reading, language arts, and mathematics over a three-year period, Little classified six urban schools as more successful or less successful. In addition, the staffs at each school were rated as high or low on staff involvement in development. Over a 19-week period, Little's research team conducted semi-structured interviews with central administrators, teachers, and school administrators. In addition, observations of classrooms, staff meetings, and informal contacts were made.

Little (1982) identified four classes of collegial interactions:

1) Teachers engage in frequent, continuous, and increasingly concrete and precise talk about teaching practice.
2) Teachers are frequently observed and provided with useful (if potentially frightening) critiques of their teaching.

3) Teachers plan, design, research, evaluate, and prepare teaching materials together.

4) Teachers teach each other the practice of teaching. (p. 331)

Little reports the pervasiveness of these interactions: "In successful and adaptable schools, all four classes of 'critical practice' occur widely throughout the building and throughout the work week" (p. 332).

Given this characterization of collaboration and a "collegial" culture, Little (1982) describes a number of benefits. At the school level, greater success in student achievement is perhaps the most significant benefit. Also, staff development has greater prospects for success, continuous professional development having become a part of the career of teaching. Teachers share work loads, increasing both efficiency and satisfaction. Teachers observe others and are themselves observed, strengthening their skills. Little (1990c) further states that collegiality can help end teacher isolation, better equip teachers for classroom work, and create a rich and complex variation in schools.

Other researchers confirm Little's (1982, 1990b) findings. Rosenholtz (1989), for example, found similar benefits in her survey and interview study of teachers in Tennessee. She explored the workplaces of teachers, characterizing various schools as high or low consensus, collaborative or isolated, learning rich or impoverished, certain or uncertain regarding technical (teaching) cultures, and "moving" or "stuck" as an improving community. Among her important conclusions, she writes,

Shared goals confer legitimacy, support, and pressure not to deviate from norms of school renewal. . . norms of collaboration enable if not compel teachers to request and offer advice and assistance in helping their colleagues improve. We also find that the greater teacher's opportunities for learning, the more their students tend to learn. (p. 7)
Rosenholtz (1989) describes the renewing power of collaborative schools: "when collaborative norms undergird achievement-oriented groups, they bring new ideas, fresh ways of looking at things, and a stock of collective knowledge that is more fruitful than any one person's working alone" (p. 41). On the other hand, she demonstrates the consequences of teacher workplaces where teachers are "professionally orphaned." In such schools, teachers feel powerless and alienated; they devalue work and learn to "make do" rather than perform. In this orphaned state, teachers' self-reliance, far from giving them confidence, inhibits their knowledge that others suffer common instructional problems, and teachers become turf-minded, unable and unwilling to impinge territorially on the domain of others' classroom practice. Akin to turf-consciousness, teacher uncertainty constructs the unwitting perception that if others suffer few instructional problems, there is personal shame in admitting one's own. (p. 69)

Nias (1987) asserts the important role of collegiality in promoting change among teachers. Noting that change (for improvement) occurs only incrementally and over long periods of time, Nias reports on the role of collegial support among teachers involved in change. Personal change, she argues, is accompanied by a sense of loss which can be offset through the support of others: "the un-learning of established ways of perceiving and the learning and practice of new ones is a lengthy, hard and potentially painful process in which the challenge and support of others play a crucial role" (p. 141). Based on interviews with 45 primary teachers, Nias contends that collegial groups enriched teachers' thinking and behaviour, encouraged pedagogical change, and allowed teachers to uncover basic assumptions, making change possible.

(1982) title, he notes, "all other things being equal, schools characterized by
norms of collegiality and experimentation are much more likely to implement
innovations successfully" (p. 12). However, he cautions against regarding
collaboration as a panacea: "There is nothing particularly virtuous about
collaboration per se. It can serve to block change or put down students as well as
to elevate learning" (p. 17). In this, introduces the possible risks of collaboration.

**Risks of Collaboration**

Little (1990c) notes that when collaboration appears to be going nowhere, as fledgling team efforts often do, teachers resent it as a waste of time (see also Bell, 1990). This leads to a quick erosion of the team's sense of purpose. Rosenholtz (1990) points out that colleagues can support resistance to change as well as implementation of it. When the teachers she studied found minimum competency testing too great a burden to adjust to, they dissociated themselves from their work and received "social support from colleagues for the divesture" (p. 86; see also Hargreaves, 1989). Little (1990c) sees a particular danger to novice teachers in collaborative schools. It can be difficult or impossible for new teachers to break into the established collaborative network of a school. Little (1990b) also argues that just because teachers interact does not mean they end their isolation: "the most common configurations of teacher-to-teacher interaction may do more to bolster isolation than to diminish it" (p. 511). As Scott and Smith (1987) discovered in their review of literature on collaboration, the practice can be a double-edged sword: it offers both the promise of a sense of belonging, and the possibility of negativism and antagonism.

Collaboration, in summary, though not without risks, appears to offer opportunities for growth and renewal to teachers. Standing in stark contrast to
the "rule of privacy" that dominates teacher cultures (Lieberman & Miller, 1990), collaboration among teachers combats isolation and promotes teacher learning.

**Collaboration in Middle Schools**

George and Stevenson (1988) proclaim that "interdisciplinary teams are characteristic of the most effective middle schools in America" (p. 21). The National Middle School Association [NMSA] (1992) sees the interdisciplinary team as central to successful middle schools. Indeed, collaboration among teachers would appear to have its greatest potential in middle schools, which are frequently structured to support team work (Johnston et al., 1988). However, two cautions are in order here. First, structuring a school to promote collaboration does not in itself guarantee collegiality (Scott & Smith, 1987). Second, resistance to teaming in middle schools can be intense for a variety of reasons, many of which relate to teachers' sense of identity as autonomous subject matter specialists (D. Hargreaves, 1980; Johnston et al., 1988).

Researchers have identified a number of benefits middle school teachers derive from their collaboration. Erb (1987), based on interviews with 200 middle school team members, lists the following benefits: teachers are more active in school-improvement decisions, report their own classroom teaching enriched, talk more about curriculum and teaching skills, and improve the way they relate to each other, students, parents, and administrators. Johnston et al. (1988) reviewed research on the affective outcomes of collaboration. Middle school teachers, they say, gain a greater sense of efficacy, higher self-esteem, relief from isolation, and experience positive interpersonal relationships. Gatewood, Cline, Green and Harris (1992) conducted survey research on teaming and teacher stress, comparing teamed and nonteamed teachers. While their results showed no reduction in the physical symptoms of stress or work-related concerns for
teamed teachers, they did find that teaming enhances the "professional self-image" of teachers. Ashton and Webb (1986), in their ethnographic study of two middle schools (including questionnaires and interviews), found that collaboration among middle school teachers reduced teachers' sense of isolation and uncertainty, a finding confirmed in the field study of Mills et al. (1992). Erb and Doda (1989) compared teamed and nonteammed teachers, finding collaboration made teaching more rewarding. Furthermore, they argue that the structured teams of the middle school are central to collegiality:

Because it facilitates communication and collaboration, teaming is an enabling reform that fosters collegiality and interpersonal affiliation. In this way team organization is far more than an instructional innovation. It changes the professional and interpersonal dynamics of schools for everyone involved. (p. 13)

In this, collaboration across "tightly bounded subject communities" becomes the sort of reform Hargreaves (1989, p. 61) calls for as a way of restructuring schools so that we don't simply reinforce a conservative and individualistic culture of teaching.

These benefits occur despite the fact, acknowledged by nearly all the researchers on the subject, that middle school teachers rarely integrate curricula or their teaching with other members of their teams. This leads to a dilemma: either the "interdisciplinary" aspect of interdisciplinary teams is being neglected with opportunities lost, or the label for this practice is inaccurate. What middle school advocates are calling "interdisciplinary teams," the key characteristic of the modern middle school, might more appropriately be called inter-subject management teams or interdisciplinary departments with a subject focus (Capelutti & Brazee, 1992).

Theorists favor the former position. George and Stevenson (1988), for
example, found that "the very best teams" from a sampling of exemplary middle schools in America reported "a substantial incidence of interdisciplinary units" (p. 12). Erb and Doda (1989) describe interdisciplinary teaching as the goal of teaming, capable of being reached only after teachers have learned trust and the skills of collaboration. They identify four levels of teaming defined by the degree of joint planning involved:

1) **preintegration**: flexible scheduling for variation in lesson planning (film or field trip);
2) **coordinated or overlap teaching**: related topics taught at the same time;
3) **cooperative teaching**: one or more teachers change how they teach some topic (e.g., all teachers require a paragraph in the fashion of the instruction of the English teacher one week);
4) **interdisciplinary thematic unit**: fully integrated around a theme.

(pp. 99-100, paraphrased)

In reality, few teams reach the fourth level of teaming. One significant possible explanation for this lies in the difficulties of collaborative planning. Little (1990c) describes the difficulty this way:

Unaccustomed to planning curriculum together or to arriving at collective agreements about instruction or management, teachers often find their first efforts clumsy and unrewarding. The time spent in meetings appears to be time lost in meeting the requirements of lesson planning and instruction. (p. 167)

Thus, the collaborative structure is valued in middle schools for its supportiveness and its ability to reduce uncertainties and end isolation (Ashton & Webb, 1986), but integration of curricular content or teaching is thwarted. Teachers, not having any training or experience in collaborative planning, do not generally persevere through the frustrations they encounter in this task (Little, 1990b). Moreover, the circular influence of the culture of teaching--isolationism, subject specialism, the power of mandated curricula--restrain
teachers from entering into meaningful collaboration (Hargreaves, 1989). Opportunities to succeed in an exciting alternative to traditional structures remain opportunities lost.

Collaborative Planning and a Conceptual Model

Stein (1978) studied the planning behaviour of an interdisciplinary middle school teaching team. Using participant observer activities and interviewing, Stein chronicled the team planning activities, focusing primarily on such practical questions as the following: where and when do teachers plan as a team? what do they do as they plan? how is the team organized? what did they plan for? and what is the role of the team in planning?

Stein (1978) reports that the team "did not do any interdisciplinary teaming and members did not take each other into account in their planning of content, methodology, or evaluation" (p. 273). In fact, the team was careful to avoid any activities that might threaten members' autonomy. Given a great deal of freedom for organizing the educational environment and activities for their students, the team members engaged in processes of "administrative maintenance," "personal maintenance," and "public relations" (p. 274). Stein argues that these maintenance functions were not only of more value than interdisciplinary activities to the individual teachers, but were also the functions supported by the institution. The team planning Stein reports made a clear distinction between the team's concerns and individual teacher's concerns: "Generally, the sphere encompassed by the team in its planning was totally separate from the sphere encompassed by the teachers in their own classrooms" (p. 279). Essentially, Stein questions whether middle school philosophy, which advocates interdisciplinary teaming, takes enough account of the importance of
administrative maintenance functions. Ignoring such realities, Stein argues, will block the realization of the goals of middle schools.

Stein's (1978) teachers did work together, solving problems and coordinating activities. In this, they depart from the typical isolation of secondary teachers. However, the clear boundaries they established around their curricular areas indicate a limited collaboration. Little (1990b) provides a framework for distinguishing among collaborative cultures.

Little (1990b) describes a continuum of collaborative relationships from relative independence to relative interdependence as follows: storytelling and scanning, aid and assistance, sharing, and joint work. Storytelling and scanning is opportunistic and autonomous, nearly completely independent. Aid and assistance "equates collegiality with the ready availability of mutual aid or helping," and in its infrequent contacts, it serves to reinforce present practice (p. 517). Sharing, on the other hand, is the routine exchange of materials, methods, ideas and opinions. Unlike advice-giving, which is fragmented, widespread sharing reveals the pattern of choices in curriculum and instruction. Little distinguishes between telling about a favorite lesson (not sharing), and sharing all materials, activities, and assignments for a particular unit. Joint work, the most interdependent form of collaboration, describes encounters among teachers that are characterized by "shared responsibility for the work of teaching (interdependence), collective conceptions of autonomy, support for teachers' initiative and leadership with regard to professional practice, and group affiliations grounded in professional work" (p. 519).

The team planning described by Stein (1978) clearly occurs at the independence end of Little's (1990b) continuum. When teachers do engage in interdisciplinary planning, does their degree of interdependence alter?
Marsh et al. (1990) outline a model of joint work that builds a conceptual scaffolding for understanding collaborative planning of interdisciplinary units (Figure 1). They explore collaborative planning as manifest in school-based curriculum development, a process that has strong similarities to the curriculum
development middle school teachers must conduct in creating interdisciplinary units. Marsh et al. reconceptualize curriculum development as a blending of curriculum research and curriculum development that guarantees staff development (p. 42). Their model offers a starting point for understanding the work of a middle school team as it plans interdisciplinary work.

The Marsh et al. (1990) model provides an analytic matrix for understanding school-based curriculum development. An example they give of a typical school-based curriculum development project is as follows: "the adaptation of a primary science workbook by a small group of teachers as a short-term plan to upgrade their teaching of science in the upper primary grades" (p. 48, original emphasis). The matrix allows for meaningful comparisons between different school-based curriculum development projects based on the type of activity in question, the persons involved, and the time commitment of the project.

In the context of examining the work of a middle school team as it plans interdisciplinary experiences, the Marsh et al. (1990) model offers a basis for exploring the various activities a team might engage in. Since the Marsh model is designed for more general circumstances, I propose the following modifications. Instead of listing the group configurations as one dimension of the model (middle school teams remain consistent), I propose listing the continuum of collaborative relations as conceptualized by Little (1990b): story telling and scanning, aid and assistance, sharing, and joint work. For the vertical cells of the matrix, I suggest using the four stages of teaming as conceptualized by Erb and Doda (1989), since these stages closely parallel the activities in the Marsh model, but more closely aligned with the task of creating interdisciplinary activities. The resulting matrix is shown in Figure 2.

The matrix of interdisciplinary collaborative planning, then, provides a tool
for making sense of the planning activities of a middle school team. Before examining more closely the *interdisciplinary* aspect of this question, I explore literature from organizational theory that promises help in understanding how teams function.

*Collaboration and Organizational Theory--a Model of Effectiveness*

The literature on groups arising from organizational theory is too vast to consider in detail here. Excellent reviews are readily available (e.g.,
Bettenhausen, 1991; Cummings, 1981; Davis & Stasson, 1988; Goodman, Ravlin, & Schminke, 1987). However, in understanding how groups function, it is useful to operate from a conceptual model. Several researchers have proposed such models. These models, as Goodman et al. (1987) point out, are general in nature and are useful as heuristics, providing an intellectual mapping of data. The prevailing models of group effectiveness acknowledge variables at the individual, organizational and group levels (Goodman et al., 1987).

For its elegance and easy application to teachers, the Hackman and Oldham (1980) model of group effectiveness seems most useful. This model "specifies the factors that are most critical to the effectiveness of self-managing work groups" (p. 207). It provides for a systematic examination of factors that may influence how the teaching team plans collaboratively. The Hackman & Oldham model examines organizational features (which would explore such issues as school culture), design features (which would explore such issues as teachers' perceptions of their subject areas), and interpersonal processes (which would explore a team's planning processes). The reasons for teachers' recognizing or creating opportunities to integrate subject areas relate directly to Hackman and Oldham's "level of effort" intermediate criteria. In short, the model provides a theoretical framework for examining how a middle school team collaboratively plans interdisciplinary units (see Figure 3). Moreover, it has had major influence in current thinking about work groups (Goodman et al., 1987).

The Hackman & Oldham (1980) model of group effectiveness has been applied in a wide variety of contexts and proven to be a useful tool for examining how groups work together (see Hackman, 1990). The conception of effectiveness, though challenged by some (Goodman et al., 1987) seems particularly appropriate for teaching teams, since it incorporates output, the team's ability to work
together, and the development of team members as individuals. Given the uncertainties of teaching and its individualistic culture (Lortie, 1975), such a conception of effectiveness can accommodate the complexities of teaching. Also, the incorporation of work technology into the model, which in the case of teaching involves material, time, and curricular restraints, encourages a broader conceptual mapping of the territory of teaching teams.

<table>
<thead>
<tr>
<th>SUPPORTIVE ORGANIZATIONAL CONTEXT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rewards for performance.</td>
</tr>
<tr>
<td>2. Availability of task-relevant training.</td>
</tr>
<tr>
<td>3. Clarity of task constraints and requirements.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DESIGN FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Design of group task.</td>
</tr>
<tr>
<td>2. Composition of group.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERMEDIATE CRITERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Level of effort brought to bear on the task.</td>
</tr>
<tr>
<td>2. Amount of knowledge and skill applied to work.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HEALTHY INTERPERSONAL PROCESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Coordinating efforts and fostering commitment.</td>
</tr>
<tr>
<td>2. Weighting inputs and sharing knowledge.</td>
</tr>
<tr>
<td>3. Implementing and inventing performance strategy.</td>
</tr>
</tbody>
</table>

Figure 3: Group Effectiveness Model, adapted from Hackman and Oldham, 1980.

One limitation of the Hackman and Oldham (1980) model is the gap in examining the group's interaction with those outside the group. Ancona and
Caldwell (1988), based on their research with new product teams, create a metaphorically powerful means of viewing these relations. They divide groups' boundary spanning activities into three basic categories: scout and ambassador, guard and sentry, and captive, immigrant and emigrant activities. This focus on the boundary activities of a group adds an important perspective to the Hackman & Oldham (1980) model, stressing that an internal perspective on groups is not sufficient by itself.

**Summary: Collaboration**

In this section, I have examined some of the benefits and risks for teachers in engaging in collaboration. Researchers have argued that collaboration among teachers leads to more successful schools (Fullan, 1989; Rosenholtz, 1989), greater student achievement (Little, 1982; Rosenholtz, 1989) and greater teacher satisfaction and growth (Little, 1982, 1990b; Nias, 1987). At the same time, researchers have cautioned that some teacher-to-teacher contacts can actually bolster isolation (Little, 1990a) and encourage teachers to resist innovations (Rosenholtz, 1989); collaboration can be viewed as unproductive and a waste of precious time (Little, 1990b).

At the middle school level, researchers have contended that collaboration is a central feature, given the importance of teams (George & Stevenson, 1988). A wide array of benefits accrue to middle school teachers through their collaboration, even though they rarely engage in interdisciplinary instruction. Erb and Doda (1989) have described the levels of teaming middle school teachers experience, arrayed by the degree of joint planning involved: preintegration, overlap teaching, cooperative teaching, and interdisciplinary thematic unit.

Building on the matrix of school-based curriculum development activities,
(Marsh, et al., 1990), I devised a matrix for understanding collaborative planning of interdisciplinary experiences, using Little's (1990b) continuum of interdependence and Erb and Doda's (1989) levels of teaming. Finally, I explored organizational theory, arguing that the Hackman & Oldham (1980) model of group effectiveness is a useful heuristic for examining the context and interactions of teachers who plan together.

Interdisciplinary Collaboration

The meeting place for teacher planning and collegiality in this study is the context of collaborative planning for interdisciplinary experiences. The range of such teaching is broad: from entire programs organized as interdisciplinary experiences to interdisciplinary "units" of a few days or weeks in length to segments of lessons (Merenbloom, 1991). Typically, in middle schools, interdisciplinary experiences occur in units of limited duration (Vars, 1987). In order to understand better what counts as an "interdisciplinary" experience, this section of the review begins by examining the concept of interdisciplinary instruction.

While the literature consistently points out that little interdisciplinary teaching goes on in schools structured to promote it, the literature does not clarify what counts as "interdisciplinary" instruction. Erb and Doda (1989), for example, argue that an interdisciplinary unit "must be grounded in the curricular objectives that are expected to be taught in the various subject areas included on the team" (p. 100). Thus, one would expect the unit to fulfill math, science, English and social studies objectives--objectives created for use in discrete subject-matter organizations.

Johnston et al. (1988), building on the work of Alexander and George (1981),
regard a team as "interdisciplinary" if teachers share "the responsibility for planning, teaching and evaluating the curriculum and instruction in more than one academic area" (1988, p. 29). The focus then shifts from curricular objectives to academic areas. Presumably any unit involving a mixture of two or more academic areas would count as interdisciplinary.

Obviously the term academic becomes a concern at this point. Beane (1990) points out that "curriculum 'correlation' is not for all subjects, but rather the 'big four' [math, social studies, science, and English] that make up the 'academic' portion of the program" (p. 22). And even within that limitation, many exemplars of interdisciplinary teaching involve non-academic activities (see, for example, the sample unit in Beane, Toepfer & Alessi, 1986; Brodsky, 1987; Stromberg & Smith, 1987).

Capelluti and Brazee (1992) complain that interdisciplinary teams are too often "nothing more than interdisciplinary departments with subjects as the primary focus" (p. 14). In this context, interdisciplinary units become "curriculum way stations," i.e., fun activities outside of the real curriculum. Bell (1990) defines interdisciplinary units as materials presented by two or more teachers so that students see connections between subjects.

To gain a better understanding of the term "interdisciplinary," I explore its use at a more general level. What have thinkers apart from the middle-school movement said about interdisciplinary studies?

Interdisciplinary studies are generally set in opposition to fragmented studies. After all, the opposite of an "integrated" program would be a "disintegrated" program. To understand what is viewed as integrated or fragmented, we must explore what is meant by "disciplines."
The Disciplines

Philosophical accounts: ways of knowing.

Disciplines can be understood to be either sociological or philosophical constructs (Goodson, 1988). At the philosophical end of the spectrum, Phenix (1964) contends that disciplines arise from various ways of knowing or making meaning in a community of scholars. Phenix argues that disciplines change all the time, and they don't necessarily match traditional school subjects. To base a curriculum on content from the disciplines, which Phenix says is essential, simply "argues for the exclusive use of materials that have been produced in disciplined communities of inquiry by men of knowledge who possess authority in their fields" (p. 11).

Phenix (1964) describes six realms of knowledge by which he categorizes human meanings (symbolics, empirics, aesthetics, synnoetics, ethics, and synoptics), and he argues that a good general education provides students with experiences in all six realms. By using the coverage of these realms as a guide, schools can combat fragmentation. This does not mean, Phenix writes, that schools cannot use interdisciplinary organization of courses:

From the principle that the content of the curriculum shall come entirely from the disciplines, it is not to be concluded that the materials of instruction ought necessarily to be organized into separate courses each of which pertains to one of the disciplines. . . . It is possible to use knowledge from the disciplines in connection with studies that cut across several disciplines. (p. 319)

Hirst and Peters (1974) develop a system similar to Phenix's (1964). Hirst and Peters contend that

all our concepts seem to belong to one of a number of distinct, if related, categories . . . . These categories are marked out in each case by certain fundamental, ultimate, or categorical concepts of a most general kind
which other concepts in the category presuppose. (p. 181)

In other words, ways of knowing again become the organizational basis for distinguishing disciplines. Like Phenix, Hirst and Peters argue that these categories are connected and to some extent, interdependent, but still distinct. The existence of such categories, however, does not argue for their use as educational tools. "Because our experience and knowledge is differentiated into a number of distinct forms, it does not at all follow that the best way of developing such knowledge and experience is to organize a curriculum in terms of these forms" (p. 186).

Hirst and Peters (1974) see the value of integrating disciplines as creating a complexity that offers different kinds of learning. Also, they maintain that the motivational value of interdisciplinary instruction is high. In their view, instruction in the disciplines is needed to understand distinct modes of knowledge and experience; integrated instruction is necessary to appreciate complex interrelations and to deal with such things as practical and moral judgments, which have been neglected by the traditional approach.

The philosophical approach to the question of integrated or interdisciplinary studies tends to argue for a blend of disciplinary (understood to be derived from scholarly communities and/or distinct ways of knowing) and interdisciplinary organizations. As Schrag (1992) points out, whatever disagreements philosophers have in demarcating the disciplines, they have little impact on curriculum designers beyond legitimating the status quo: "Whether the demarcations are those of Phenix, Hirst, or Bailey, it turns out that music, history, chemistry, and mathematics are distinct 'nations.' But this is precisely the set of demarcations that is already enshrined in the traditional curriculum map" (p. 287, original emphasis).
Sociological accounts: solicitous surrender.

Bernstein (1977) illustrates the view that disciplines are a social/political phenomenon. He frames the issue of interdisciplinarity in terms of power relationships. Strongly insulated subject areas form a "collection code," while weak boundaries between subjects constitute an "integrated code." Within the collection code, an oligarchic power structure dominates. This structure leads to hierarchical relationships among most staff members, where department heads relate to each other on a work basis, but other staff members experience only social, non-task-based relationships. Integrated codes, on the other hand, encourage more democratic structures, where teachers relate horizontally on a social level and "out of a shared, co-operative educational task" (p. 104). The administration of the school shifts from being invisible for most teachers to being visible to all. Thus, a trend toward integration is symptomatic of changes in power structures:

[Integration is an] attempt to de-classify and so alter power structures and principles of control; in so doing to unfreeze the structuring of knowledge and to change the boundaries of consciousness. From this point of view integrated codes are symptoms of a moral crisis rather than the terminal state of an educational system. (p. 111)

In this "crisis," the givenness of curricular organization is called into question. Integrating curricula challenges definitions of academic success, which Hargreaves (1986) found to be preserved by the occupational cultures of high-status subjects in a middle school. Moreover, integrating curricula redefines cultural capital: "Yet in a hierarchical society of continuing social and economic inequality in which educational credentials played an important selective role, subject-based academic knowledge was also the currency of educational and
social selection and opportunity" (Hargreaves, 1989, p. 62).

Grace (1978), in his field study of 10 inner-city London schools, connects the traditional academic curriculum to its Victorian purposes of "civilizing," "gentling," and "making competent" an urban population (p. 190). Some of the teachers he interviewed saw the traditional curriculum as a path of escape for the students; others saw it as a means of alienation:

The conventional structure of the curriculum, far from being regarded as a logical necessity derived from the given boundaries of knowledge, is frequently seen to be an alienating and meaningless collection of arbitrarily defined contents. A pedagogy based essentially upon teacher transmission within ordered hierarchies of subject groupings and pupil groupings is criticized for generating intellectual and social passivity for the majority. (p. 191)

However, Grace (1978) notes that the minimal requirements for integrating curricula become major obstacles for teachers attempting to do so. Grace concludes that practical constraints, the power of examination boards and their notions of valid knowledge, and conceptions of what it means to be a good teacher perpetuate the "invisible" controlling function asserted by the traditional curricular organization.

Goodson (1988) argues that disciplines arose and became institutionalized for social and political reasons rather than as fundamentally connected concepts or ways of knowing. "Far from being derived from academic disciplines, some school subjects chronologically precede their parent disciplines" (pp. 164-5, original emphasis). He gives an historical account of the establishment of the "discipline" of geography, from its origins in grammar schools to its institutionalization in universities, to demonstrate his point. For purposes of achieving status and material resources, geography teachers deliberately and systematically sought recognition as a discipline, thus creating a hierarchical
relationship between the school subject and the universities. It was, Goodson writes, "not so much domination by dominant forces, more solicitous surrender by subordinate groups" (p. 180).

Klein (1990) asserts that modern notions of disciplinarity arose in the nineteenth century in association with such forces as the industrial revolution and the general "scientification" of knowledge (see also Fisher, "Boundary," 1990). At the university level, the demands of industry for specialists and the recruiting patterns of disciplines reinforced specialization in disciplines. Beane (1990) sees faculty psychology and "high culture" of the "elite" as the sources of modern disciplinary structures.

Continuum of conceptions of the disciplines.

Interestingly, both the philosophical and sociological accounts of "disciplines" argue against fragmentation. Educational philosophers, though maintaining that important fundamental distinctions exist among the disciplines, call for educators to make connections for students. Sociologists of education, on the other hand, vehemently argue that the distinctions among disciplines are artificial and oppressive, having their basis in questions of control. Thus, continued fragmentation represents a threat to equitable education. Goodson (1988), for example, argues that to change schools merely through altering teaching methods or organization "is to accept a central mystification of hierarchical structure through curriculum, which would actively contradict other aspirations and ideas" (p. 36). In other words, whatever changes one makes will not really alter schools as long as the structure of curriculum into separate disciplines continues.

Views of interdisciplinarity can be arranged on a continuum: at one end, scholars characterize disciplines as fundamental ways of knowing which all
students need to experience; at the other, scholars characterize disciplines as artificial boundaries raised up to assert control and accumulate status.

*Interdisciplinarity and the Middle School*

How does the debate over disciplines bear on middle school teams? Several considerations must be mentioned in answer to that. First, middle school teachers, having been trained primarily as secondary teachers (Wiles & Bondi, 1986), view themselves as subject matter specialists (Goodlad, 1984; A. Hargreaves, 1986; D. Hargreaves, 1980; Lieberman & Miller, 1984). As such, they are representatives of various disciplines and inclined to act as *mediators*, to use Phenix's (1964) term, between their subjects and the students, with sets of subject subcultural assumptions about learning and students (Hargreaves, 1986) and powerful dispositions toward subject areas (Ball & McDiarmid, 1990). Often the proposal to integrate subjects is viewed by specialist teachers as a threat to their disciplines (e.g., Adams, 1976, Blakeston, 1990, Fisher, "Integration," 1990, and Haigh, 1975). Second, the call for interdisciplinary teams at the middle school level (e.g., George & Stevenson, 1988) appears to be unaccompanied by any clear understanding of exactly what "interdisciplinary" means beyond involving teachers from differing subject areas (Capelluti & Brazee, 1992). This issue needs to be addressed and clarified. Third, the particular function and benefits of interdisciplinary units themselves call for exploration and understanding. Do teaching teams plan interdisciplinary units as attempts to deal with the fragmentation described by Goodson and Bernstein? Are teaching teams influenced more by the philosophical and epistemological questions raised by Phenix and Hirst and Peters? Or, alternatively, do teaching teams view interdisciplinarity from an entirely different perspective? How do they perceive
The role of the "interdiscipline" element of interdisciplinary experiences?

The "ideological context" (Ball, 1981) faced by the middle-school teachers in this study included arguments favouring curricular integration at several different levels of discourse: general voices (arguments that advocate integration in a wide variety of contexts), voices from the middle school movement (arguments specifically directed to teaching this age group), and local voices (arguments arising in the current context of proposed changes in British Columbia). The general range of this ideological context is quite broad.

At each of the three levels (general, middle-school, and local), arguments have been advanced for integrating curricula for the following sorts of reasons: improving students' motivation, interest, or sense of relevance (Carnegie Council, 1989; Court, 1991; Haigh, 1975; Halsam, 1986; Pring, 1973; Sullivan, 1988); correcting social inequities (Beane, 1990; Miller, 1988); enhancing student learning or imparting knowledge (Ackerman, 1989; British Columbia, 1990a; Driscoll, 1986; Heremeren, 1986; Klein, 1990; Pring, 1973; Wiles & Bondi, 1981; Vars, 1987); and improving the organizational or functional aspects of the school as an institution (Fogarty, 1991; Haigh, 1975; Lake, 1988; Shoemaker, 1989; Wiles & Bondi, 1981; Vars, 1987). In addition, some have argued for curricular integration on the basis of what appear to be slogans, such as preparing for life in the twenty-first century (Shoemaker, 1989) or real life is interdisciplinary (Beane, 1990; McGinnis, 1988; Vars, 1987; Warwick, 1971).

This array of arguments for curricular integration provides a backdrop for the work of a specific team. What sorts of reasons does a practicing team advance for curricular integration? How do the teachers' conceptions of interdisciplinarity take such arguments into account?
Research on Disciplinary Differences and Interdisciplinary Teaching

Given the underpinnings of the interdisciplinary approach to education, what has research revealed about interdisciplinary collaboration?

A number of writers contend that the blending of disciplines entails numerous benefits. Bernstein (1977) argues that integration will lead to a greater relating of teachers to one another, because their relationships arise out of a shared, cooperative educational task. Beam (1983), addressing the problems of fragmentation at the university level, argues that interdisciplinary work generates new ideas and more useful conceptual structures. Senesh (1983) maintains that reducing the atomization of knowledge (which occurs through fragmented approaches to learning), increases the ability of learners to use knowledge. Whitford and Kyle (1984) claim that the differing "generic" teaching approaches of each subject area can influence teachers from other subject areas in the context of interdisciplinary instruction, an idea also advanced in Hargreaves (1989).

While differences among subject specialists have been noted in attitudes toward preparation and issues of evidence (Tobias & Abel, 1990), task structure, resource dependence, and departmental governance structure (Whetten & Betttenhausen, 1987), structures based on knowledge domains (Becher, 1989), working languages (Becher, 1987), attitudes toward innovations and conceptions of "good practice" (Ball, 1981) and subject commitment and pedagogies (Hargreaves, 1989), it is important to add that subject areas are not necessarily unified communities. Ball and Lacey (1980) studied subject departments and found that they could distinguish between the department as an organizational element and the subject department as an epistemic community. The former was characterized by contention and competition that suppressed expression of the latter. In other words, they challenge the notion of subject specialists as
unified in their differences from other subject specialists. Still, the dominance of differences between subject specialists is worth noting. As Goodson (1989) puts it, "Academic subjects make academic subjectivities--a patterning of consciousness as to what schooling and ability are about" (p. 13).

Some research has explored the differences between teachers from different subject areas. Becher (1989) explored the differing identities of various "academic tribes" at the university level by examining disciplinary publications and interviewing "elite" members of 12 disciplines. He notes differences between disciplines regarding attitudes toward collaboration, pressures to publish, idea "half-lives," and other issues. He further notes attempts by disciplines to guard their "territories" from "illegal immigrants." While his work studies university professors, given the power of university experience in determining the subject identities of teachers (Grace, 1978; Hargreaves, 1989; Phillips, 1986; Wraga, 1992), it lays a groundwork for understanding the disciplinary identities brought to interdisciplinary work.

Tobias and Abel (1990) gathered fourteen university professors of science and technology for a week-long course on poetry in order to explore why science students experience frustration in humanities courses. Tobias and Abel found that the science specialists "tend to pay attention to structure and hierarchical orderings" while the humanists "tend to pay attention to similarities and differences" (p. 169). In addition, the science professors were frustrated by the lack of sequence and the lack of graphic reinforcement in humanities presentations. The biggest problem for the scientific thinkers was the general "absence of proof" (p. 172) in the poetry seminar. At the most practical level, the study revealed that humanities teachers generally demand a good deal of advance preparation from their students, while science professors demand more
in terms of follow-up and application.

Tobias and Abel (1990) also discovered similarities among the different disciplines. For one thing, experts in both disciplines saw a parallel in "the search for 'layers of meaning'" as thinkers (p. 174). Both types of thinkers also recognized the importance of broadening their understanding of students who come to them with thought patterns from differing disciplines.

The work of Tobias and Abel (1990), though among university professors, demonstrates possible difficulties that may arise when disciplinary specialists attempt to plan learning experiences together. For example, if science and math experts view out-of-class work primarily as application and practice, while language arts and social studies experts view the same work as primarily preparation for class, these assumptions could create conflict in the design of interdisciplinary experiences.

Gehrke (1991) identifies an important problem among teachers trying to create interdisciplinary experiences: their lack of understanding of what constitutes an "integrative curriculum." To explore this problem, she conducted a "naturalistic study of the integrative curriculum-development efforts" of six teacher groups (p. 107). Gehrke collected her data through observation and document analysis. She kept informal notes on the development processes of the teachers, processes ranging in duration from a day and a half to more than two years. She also kept notes on the reflective comments teachers made, collecting some written comments from some teachers. Using the plans and materials teachers developed, she analyzed across groups, charting differences and similarities.

Gehrke (1991) reports three findings. First, integrative curriculum development requires time for information exchange on a variety of levels in
order to proceed productively. Teachers must be allowed to discuss their academic backgrounds, pedagogical knowledge, common interests, and personal attributes. Second, the implicit definitions of "integration" in teachers' work can be categorized in the following taxonomy: concrete relational, applicative, logical, and metaphoric. Gehrke argues that these definitions pervade the learning activities created by a planning team, though she does not clarify whether the teams worked to create activities to match their definitions or the activities merely implied a certain definition. Third, teachers who do not work from an abstract definition of integration can be taught (coached) to do so.

Two facets of Gehrke's (1991) study deserve comment. First, her role as participant observer is tainted by her competing role as consultant or workshop leader. She acted as consultant or workshop leader in every case she studied, guiding and facilitating the integrative curriculum development she claims to be observing, exerting pressure at times for a particular sort of development (p. 115). Second, the groups she studied may not adequately represent teaching teams currently wrestling with the creation of interdisciplinary units. Of her six groups, only two could be called actual teams: one of these operated in an alternative high school without the typical curricular constraints most teachers face, and the other was a demonstration team of three staff-development personnel in charge of one grade six class. The four remaining groups came together, sometimes from different schools, without any serious intention of teaching an integrated curriculum. The significance of Gehrke's findings is diminished by the artificial circumstances of most of the groups and the eccentricity of the remaining ones: she presents a "naturalistic" study with a very limited natural context.

Despite these limitations, Gehrke's (1991) study raises important questions.
In the absence of guidance from curriculum guides and experience, what sources do teaching teams turn to in creating interdisciplinary units? What experiences do teachers draw on in collaborative planning? Also, does Gehrke's taxonomy of definitions of integration apply to a naturalistic group? Do these differing definitions relate to one another in a developmental scheme?

Interdisciplinary Planning Models

A number of theorists have proposed models or techniques for planning interdisciplinary experiences or units. While there is no demonstrable empirical connection between what teachers do when they collaboratively plan interdisciplinary experiences and what the models prescribe, I have outlined several planning models in Figure 4. These are included here merely to acknowledge that such models are available, and that collaborating teachers may or may not use such models in their planning of interdisciplinary experiences. Of course, more generic models of curriculum development are also offered as planning models for interdisciplinary instruction (e.g., Beane, Toepfer, & Alessi, 1986; Wraga, 1992).

Summary: Interdisciplinary Structure

In summary, interdisciplinary approaches to education have been advocated for reasons that could be spread on a continuum from social to epistemological. Interdisciplinary teams, the "hallmark" of middle schools, appear to function within both of these purposes. While there is a clear call for interdisciplinary teams (Carnegie Council, 1989; George & Stevenson, 1988; NMSA, 1992), there is no consensus on whether the interdisciplinary aspect of such teams addresses social inequities (Beane, 1990), student management and motivation (Strubbe, 1990), learning the contents of the disciplines (Vars, 1987; Wiles & Bondi, 1981),
or many other issues.

<table>
<thead>
<tr>
<th>Source</th>
<th>Characterization</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jacobs &amp; Borland</td>
<td>A four-step planning process.</td>
<td>1. Select a topic; 2. Brainstorm associations (through discipline wheel); 3. Formulate guiding questions; 4. Design and implement activities.</td>
</tr>
<tr>
<td>(1986)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erb &amp; Doda p. 110</td>
<td>Ten-step planning process; first three steps are team decisions; steps 4-6 are individual teacher's responsibility; steps 7-10 require interaction among teachers.</td>
<td>1. Agree on culminating activity; 2. Agree on theme; 3. Agree on 2-3 objectives; 4. Select subject objectives; 5. Select and sequence learning activities; 6. Plan for accountability; 7. Prepare for instruction; 8. Begin teaching; 9. Evaluate unit; 10. Add unit to repertoire.</td>
</tr>
<tr>
<td>Palmer (1991)</td>
<td>Designed to keep teachers' content area central and encourage &quot;natural&quot; integration, the graphic planning tool allows focus on subjects and central issue. For district development of integrated curricula.</td>
<td>1. Teachers in cross-disciplinary groups devise lists of possible connections; 2. Planning wheels developed, featuring focus and subject perspectives; 3. Curriculum developers use wheels to build curriculum; 4. In-service leaders help implement; major concepts and connections are articulated.</td>
</tr>
</tbody>
</table>

Figure 4: Models of interdisciplinary planning

In studying different subject-area teachers, differences related to subject areas
emerge. I have presented evidence that teachers can profit from working with teachers in other areas, though the process of working in interdisciplinary planning is complex (Gehrke, 1991). Finally, I summarized a number of prescriptive models for interdisciplinary collaborative planning.
Denzin (1989, pp. 177-78) describes four conventions of writing up research results in the ethnographic tradition. These are the confessional tale, which focuses on the researcher's experience; the realist tale, which depicts the details of a lived experience; the impressionist tale, which gives images and impressions of a phenomenon; and the scientific tale, which focuses on cold facts and statistics. This section of the dissertation resembles the confessional tale in that my focus here is on my experiences as researcher.

Methods and Procedures

The purpose of this study was to describe and analyze how middle school teachers from different subject areas collaboratively planned interdisciplinary experiences. To accomplish this purpose and answer the research questions identified in Chapter One, I used "qualitative" or fieldwork research (Erickson, 1986). Specifically, this research was an in-depth case study of one interdisciplinary team of middle school teachers.

Research Perspective

The research design builds on a conception of people as both influenced by and influencing social realities. Erickson (1986) expresses the blend of individual and social aspects of behaviour in this way: "Individuals are not identically socialized automatons performing according to learned algorithmic routines for behavior . . . . Rather, they are persons who act together and make sense,
according to the culture 'rules' which as they enact, they vivify in situationally specific ways" (p. 130). To capture this interplay, the research design had to account for both individual action and social factors, in particular as the two forces meet in a specific collaborative context.

Griffin (1985) designed her research from a similar perspective:

We are both determined by and potential determinants of social forces. People are neither passive reflections of stereotyped images and ideas, nor acquiescent victims of oppressive social conditions. Conversely, we are not all active 'social agents', able to make 'free choices' and rise above the most harrowing social conditions through sheer effort, willpower or 'individual resourcefulness.' Qualitative cultural analysis tries to maintain that tension between the individual as active social agent, the product of a given 'life history', capable of making positive decisions and choices, and the individual as influenced by specific social structures and ideologies. (p. 106)

The research design which follows is based on acknowledging and exploring this tension and interplay between the individual and the collaborative team and between the team and the school at large. I seek to explore events from which "particular sets of individuals come to hold distinctive local meanings-in-action" (Erickson, 1986, p. 129).

Symbolic interactionism (Blumer, 1969), the theoretical basis for participant-observation methodology, builds on three assumptions that make it particularly appropriate for understanding the interplay of individuals and their situation in groups. These assumptions are listed by Denzin (1989, p. 5) as 1) social reality is a social production, 2) humans are capable of minded, self-reflexive behaviour, and 3) in taking a particular standpoint, humans interact. Denzin explains that this interaction is symbolic because humans manipulate symbols (words, meanings, languages). Symbolic interactionism takes "human interaction" as the basic data source, and is committed to viewing the world from the subjects'
perspective (Denzin, 1989).

Wertsch (1991) develops a psychology of the mind that harmonizes with and extends some of the principles of symbolic interactionism, particularly in understanding the nature of the symbolic. Building on the work of Vygotsky and Bakhtin, Wertsch accounts for the human mind in a less individualistic manner than contemporary psychology typically does. Like Blumer, Wertsch gives action a central role: "When action is given analytic priority, human beings are viewed as coming into contact with, and creating, their surroundings as well as themselves through the actions in which they engage" (p. 8). Thus, humans are not simply recipients of stimuli from the environment, nor is the environment secondary. Moreover, action is always mediated by symbols: "The most central claim I wish to pursue is that human action typically employs 'mediational means' such as tools and language, and that these mediational means shape the action in essential ways" (p. 12).

From Vygotsky, Wertsch derives the mediating function of sign systems:

In contrast to many contemporary analyses of language, which focus on the structure of sign systems independent of any mediating role they might play, Vygotsky approached language and other sign systems in terms of how they are a part of and mediate human action. (p. 29)

This can be seen in the development of thought. Wertsch accepts Vygotsky's contention that individual development occurs on two levels: first as intermental and then as intramental development. Thought is mediated by the social context. Clearly this implies a need to examine the symbolic interactions among humans, since their actions will be affected by such interaction.

Bakhtin provides Wertsch (1991) with concepts to examine how the mind works with symbols. According to Wertsch, Bakhtin based his "translinguistics" on the utterance as a basic unit. Understanding another involves
interanimation, or creating a set of answering words to the utterance of another. Understanding, thus, is dialogic as opposed to a listener simply receiving communication as through a conduit. Wertsch also accepts Bakhtin's view that a voice (a speaking personality) always invokes a social language or speech genre. In this sense, individuals "rent" meaning from a larger context. These concepts provide a context for understanding the symbolic interactions of humans:

By focusing on speech genres as mediational means, one is constantly reminded that mediated action is inextricably linked to historical, cultural, and institutional settings, and that the social origins of individual mental functioning extend beyond the level of intermental functioning. Because utterances inevitably invoke a speech genre, it is no longer possible to view dialogue in terms of two localized voices. (p. 144)

Wertsch raises the important Bakhtinian question, Who is doing the talking here? This question, especially in a study of group interaction, provides a way of viewing the formation of joint action through the mediation of symbols.

Case Study Rationale

Yin (1989, p. 20) argues that a case study is appropriate for answering a how or why question about events over which the investigator has no control. Denzin (1989, p. 185) writes that the purpose of a case study is to analyze a case or cases to describe or generate theory: "The case study analyzes a case or body of cases for what can be said about an underlying or emergent theory or social process (Strauss and Glaser, 1970, p. 183)."

Yin (1989) defines the case study as an empirical inquiry with several characteristics. A case study "investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used" (p. 23).
Note that Yin does not argue that case studies must be limited to qualitative research techniques.

As I indicated in Chapter Two, previous studies of teacher planning have not examined the actual planning of middle school teaching teams as they collaboratively created interdisciplinary experiences. Therefore, while we can generalize (within limits) from studies of teacher planning to the collaborative context, the research lacks an in-depth exploration of a particular case of middle school teachers engaged in interdisciplinary collaborative planning. By focusing on a single case in depth, I addressed this gap in our understanding. A case study is an appropriate way to investigate how and why a team of middle school teachers collaboratively plans interdisciplinary experiences. Of course, one value of a case study is that it is in some sense representative of the experiences of a group or individuals (Shulman, 1988). The issue of generalizing from a case study emphasizes the reader's responsibility to determine the applicability of the case to his or her setting (Connelly, 1978; Kennedy, 1979, Lincoln & Guba, 1985).

**Overview of Fieldwork Research**

Fieldwork research (Van Maanen, 1988), which includes participant observation, interviewing and document analysis (Burgess, 1984), is appropriate to this study for several reasons. First, fieldwork research allows one to understand the specific structure of an occurrence as opposed to its general character and overall distribution (Erickson, 1986). In fieldwork research, the phenomenon of interest can be investigated in its real-life context using multiple sources of data (Burgess, 1984; Yin, 1989). Thus, fieldwork research permits an examination of the specific planning of middle school teams at work in schools. Second, fieldwork research and case studies in particular are most effective in
answering how or why questions about events over which an investigator has little control (Yin, 1989). The research questions outlined in Chapter One follow that form. Third, ethnographic methods, especially the topic-centred participant observation described by Evertson and Green (1986) and in-depth interviewing, allow the investigator to explore not only the natural occurrence of events, but the meanings attached to these events by the participants. Particularly in a study of this nature, focusing on actions with a substantial mental component, access to participants' meanings is crucial.

I used "qualitative" or fieldwork research methods in this case study. Participant observation (Becker, 1958), interviewing of informants, and document analysis became my primary means of collecting data (see below). By using various research techniques, I sought multiple sources of data, an important principle of case study research (Yin, 1989).

Site Selection and Entry

Rarely do interpretive researchers seek random samples of respondents. Instead, fieldwork researchers consider what Goetz and LeCompte (1984) call comparability and translatability. Through explicitness in their reporting, researchers allow readers to determine to what extent reported findings bear on their own contexts (Connelly, 1978; Kennedy, 1979). In considering a research site, I identified the following criteria, based on what the literature identifies as typical and on the focal point of this case study:

- the teaching team must be made up of from three to five members representing different subject areas (preferably academics) (Alexander & George, 1981; Vars, 1987);
- the teachers must work in a middle school situation (grade
configuration of the team's student clientele should be between grade five and grade nine; the school should acknowledge middle school philosophy) (Alexander & McEwin, 1989; Bell, 1990);

• the teachers must regard themselves as subject matter specialists (Alexander & George, 1981; Hargreaves, 1986; Vars, 1987);

• the team must meet regularly for planning and other purposes (George & Stevenson, 1988);

• the team must be committed to creating interdisciplinary experiences.

I sought such a team through a network of contacts. Initially, several professors with connections in the public schools recommended people for me to contact. Based on these recommendations, I telephoned school principals to ask if there were a team that might fit this case study in their schools. In each instance, I asked the principals if they knew of other schools I could contact, and this led to further telephone calls. In addition, I encountered other possible sites through published sources, such as a publication of the British Columbia Teachers' Federation. I also telephoned an office of the Ministry of Education, asking for sites in my area where middle school teachers were working on curriculum integration. Through this phone call, I discovered Waterfront Middle School (like all names in this study, a pseudonym), which ultimately became the site of my study.

Entry to a research setting must be carefully negotiated, offering protection to the participants in the study (Erickson, 1986) and honouring the procedures of the school and district. I began my entry into Waterfront by telephoning a vice principal whom the Ministry had identified as the contact person at this school. We arranged an interview in May of 1991, and Mrs. Jameson explained to me the interdisciplinary work going on at her school. She became, for me, a way of initially exploring the "casing" questions Schatzman and Strauss (1973, p. 19)
raise of a possible site: suitability, feasibility, and suitable tactics for negotiating entry. She further aided me by later introducing me to the team at the school and assisting me in getting district approval for the research project through an assistant superintendent.

Waterfront Middle School serves approximately 600 students in grades seven through nine. Located in southwest British Columbia, the school began making the transition from a secondary to a middle school in the fall of 1988. At the time I first interviewed Mrs. Jameson, there were two interdisciplinary teams at the school, and both had received Ministry funding for site development activities involving curricular integration. Both teams met the criteria established above for a purposeful or judgment sampling (Burgess, 1984; McMillan & Schumacher, 1989). I gave Mrs. Jameson a brief description of my proposed study, which she used to discuss the project with the teams. One team was favourably disposed to the study; the second team was reluctant. Mrs. Jameson introduced me to the former team, and they expressed interest in the project.

Following interviews with the assistant superintendent, the school principal and a second vice principal, I received permission to conduct the study at Waterfront, subject to final approval from the teachers (which I obtained through written consent forms). Of course, obtaining formal approval for a research project and successfully entering a site are not synonymous. Schatzman and Strauss (1973, p. 22) maintain that entry is a continuous process of establishing and developing relationships. Entry into Waterfront began in May of 1991, but continued through the early school year as I gained the trust and acceptance of the teachers. Mr. Smythe, the vice principal, introduced me at the first staff meeting on the first day of the 1991-92 school year. He emphasized my experience as a middle school teacher in his introduction; he pointed out that I was not just from the "ivory tower," but, as he put it, "He has actual teaching
experience." His cues were helpful in my self-portrayal, since I found early on that teachers were far more interested in me as a fellow teacher than as a researcher.

Sources and Settings for Data Collection

Team Meetings

The primary purpose of this study was to describe and analyze the collaborative planning of an interdisciplinary team. Therefore, regular team meetings became the main source of data.

As a participant-observer, I attended the regular meetings of the teaching team. Waterfront operated on an eight-by-four cycle of blocks (i.e., in four days, all eight blocks met three times). Each teacher had one preparation period in the eight blocks, and the teaching team shared the same preparation block. In early October, the team established E Block of day one as their regular team meeting time. In addition to the regular meetings, I attended special team meetings arranged for planning purposes (on other days of the cycle) and extra meetings made possible through such events as inservice or professional development programs. The general pattern of observation involved what Burgess (1984, following Schatzman & Strauss, 1973) sees as three levels: routine events (regular meetings), special events (professional development days and released time opportunities), and untoward events (e.g., a power outage on 29 September cancelled school and allowed an unscheduled meeting).

In the course of the year, I attended 26 team meetings and several day-long meetings. I kept notes on each meeting, and I audiotaped approximately one in four of these meetings. I transcribed some of these tapes in full; most often, I transcribed relevant portions of the meetings (Burgess, 1984) or used the tapes to
check and supplement fieldnotes. On occasions when I could not be present at a scheduled team meeting, I either interviewed one or more of the team members about what had transpired, or in one case, the teachers provided me with notes. (See Figure 5.)

As part of my attempt to reciprocate for their participation, I typed up minutes for each regular team meeting. I gave these minutes to Catherine, the team leader, offering to correct any mistakes or omissions. Catherine made the minutes available to the other team members. In this, I was able to provide a service to the team, as well as an opportunity for respondent corroboration of my observations. None of the teachers offered any corrections to the minutes.

**Individual Classrooms**

To understand each team member's planning and teaching perspective, I conducted participant-observation activities in each classroom. Originally, I envisaged this part of my study as serving two functions. First, I wanted to understand the "social ecology" (Erickson, 1986) of each classroom. It would be incorrect to assume that because teachers are teamed together in the same school their classrooms represent the same "microculture" in terms of student/teacher interactions. Second, I wanted to offer such assistance as I could to the teachers as a further form of reciprocity. I found that I was usually unable to assist the teachers. I made a general offer of assistance early in the study which I repeated regularly, but the teachers rarely indicated any ways I could help them during class. I was able, at various times to type documents, run off photocopies, or assist with bulletin boards. I engaged in some interaction with the students: I answered questions when the teachers were circulating to individual students; I assisted in a science game; I read to some students in English; I supervised a
<table>
<thead>
<tr>
<th>Date</th>
<th>Regular</th>
<th>Special</th>
<th>Taped?</th>
<th>Major issues discussed</th>
<th>Interdisciplinary issues?</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/4/91</td>
<td>NA</td>
<td>N</td>
<td></td>
<td>Explain study and get expectations</td>
<td>Y</td>
</tr>
<tr>
<td>9/25/91</td>
<td>NA</td>
<td>Y</td>
<td></td>
<td>Aides, visualization, novel study</td>
<td>Y</td>
</tr>
<tr>
<td>9/27/91</td>
<td>S</td>
<td>N</td>
<td></td>
<td>Team leaders and job descriptions</td>
<td>N</td>
</tr>
<tr>
<td>10/8/91</td>
<td>R</td>
<td>N</td>
<td></td>
<td>Students causing disruptions</td>
<td>N</td>
</tr>
<tr>
<td>10/28/91</td>
<td>R</td>
<td>N</td>
<td></td>
<td>Interims and aide help</td>
<td>N</td>
</tr>
<tr>
<td>11/14/91</td>
<td>R</td>
<td>N</td>
<td></td>
<td>Current work and future directions</td>
<td>Y</td>
</tr>
<tr>
<td>11/20/91</td>
<td>R</td>
<td>N</td>
<td></td>
<td>Students, &quot;watchdog,&quot; rationalize lit, word</td>
<td>Y</td>
</tr>
<tr>
<td>12/2/91</td>
<td>R</td>
<td>N</td>
<td></td>
<td>Students, names, disabled presentation</td>
<td>Y</td>
</tr>
<tr>
<td>12/6/91</td>
<td>R</td>
<td>N</td>
<td></td>
<td>Student concerns</td>
<td>N</td>
</tr>
<tr>
<td>12/12/91</td>
<td>R</td>
<td>N</td>
<td></td>
<td>Aide, Word project, Outsiders</td>
<td>Y</td>
</tr>
<tr>
<td>1/7/92</td>
<td>S</td>
<td>Y</td>
<td></td>
<td>Discipline, Word project</td>
<td>Y</td>
</tr>
<tr>
<td>1/10/92</td>
<td>R</td>
<td>Y</td>
<td></td>
<td>Assessing team, Renaissance, pro-D plans</td>
<td>Y</td>
</tr>
<tr>
<td>1/13/92</td>
<td>S</td>
<td>N</td>
<td></td>
<td>Word project (point of entry)</td>
<td>Y</td>
</tr>
<tr>
<td>1/16/92</td>
<td>S</td>
<td>Y</td>
<td></td>
<td>Discipline problem, word u., Outsiders, fairy t.</td>
<td>Y</td>
</tr>
<tr>
<td>1/22/92</td>
<td>R</td>
<td>N</td>
<td></td>
<td>Movie field trip, fairy tales, discipline</td>
<td>Y</td>
</tr>
<tr>
<td>1/23/92</td>
<td>R</td>
<td>N</td>
<td></td>
<td>Field trip (and letter), books, aide, word</td>
<td>Y</td>
</tr>
<tr>
<td>1/29/92</td>
<td>R</td>
<td>N</td>
<td></td>
<td>Reading fairy tale, evaluations, students</td>
<td>Y</td>
</tr>
<tr>
<td>2/4/92</td>
<td>R</td>
<td>N</td>
<td></td>
<td>Field trip evaluation, deadline policy</td>
<td>N</td>
</tr>
<tr>
<td>2/10/92</td>
<td>R</td>
<td>Y</td>
<td></td>
<td>Aide problem, workshop, group work, fairy t.</td>
<td>Y</td>
</tr>
<tr>
<td>2/21/92</td>
<td>R</td>
<td>N A</td>
<td></td>
<td>Field trip, problem solving</td>
<td>Y</td>
</tr>
<tr>
<td>2/27/92</td>
<td>R</td>
<td>Y</td>
<td></td>
<td>Peer tutors, discipline, illustrations, writing</td>
<td>Y</td>
</tr>
<tr>
<td>3/10/92</td>
<td>R</td>
<td>Y</td>
<td></td>
<td>Student, integrating via process, fairy tale unit</td>
<td>Y</td>
</tr>
<tr>
<td>3/23/92</td>
<td>R</td>
<td>Y</td>
<td></td>
<td>Student, field trip, problem solving</td>
<td>Y</td>
</tr>
<tr>
<td>4/2/92</td>
<td>R</td>
<td>N</td>
<td></td>
<td>Problem solving unit, student reporting</td>
<td>Y</td>
</tr>
<tr>
<td>4/14/92</td>
<td>R</td>
<td>N</td>
<td></td>
<td>Field trip, problem solving</td>
<td>Y</td>
</tr>
<tr>
<td>4/28/92</td>
<td>R</td>
<td>Y</td>
<td></td>
<td>Oral reports, student racism, field trip, lit.</td>
<td>Y</td>
</tr>
<tr>
<td>5/4/92</td>
<td>R</td>
<td>N</td>
<td></td>
<td>Preparing for grade 7 presentation</td>
<td>Y</td>
</tr>
</tbody>
</table>

Figure 5: Team Meetings, Topics, and Observation Details
group of students on a field trip.

I found that time in the classroom not only allowed me to observe each teacher's work, but it also provided opportunities for further interaction with the teachers. For example, Trent and Catherine often approached me at appropriate moments during class to explain what they were doing or why. Jeremy did not generally approach me, but in our interaction with students, he willingly answered my questions.

I originally intended a short period of classroom observations, since I did not see a high theoretical relevance to my study. However, I extended this period for two reasons. First, I found it helpful in establishing rapport with the teachers. Second, I found that "hanging around" during the teaching blocks presented numerous opportunities for conversing with the teachers in their normal work routine. This struck me as a convenience to the teachers, rather than always establishing interview times. In the course of the year, I observed each teacher's classroom more than 20 times. I also observed their advisory groups from two to four times each. (See Table 1.)

The School

Recognizing that the collaborative relationships of the teaching team may be influenced by the culture of the school in general (Lieberman & Miller, 1984, 1986), I broadened my study beyond the team itself. For example, I wanted to document the principal's interaction with the teaching team (i.e., memos and informal comments). I had expected that he might attend some team meetings or communicate expectations to the team, which would have been an indicator of the importance of interdisciplinary work beyond the team's influence. His
Table 1: Data Sources

<table>
<thead>
<tr>
<th>SOURCES</th>
<th>PARTICIPANT-OBSERVATION</th>
<th>INTERVIEWS</th>
<th>DOCUMENTS ACQUIRED?</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATHY</td>
<td></td>
<td>5 formal</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>classroom</td>
<td>24 sessions</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>advisory</td>
<td>4 sessions</td>
<td>N</td>
</tr>
<tr>
<td>JEREMY</td>
<td></td>
<td>5 formal</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>classroom</td>
<td>21 sessions</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>advisory</td>
<td>2 sessions</td>
<td>N</td>
</tr>
<tr>
<td>TRENT</td>
<td></td>
<td>5 formal</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>classroom</td>
<td>24 sessions</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>advisory</td>
<td>3 sessions</td>
<td>N</td>
</tr>
<tr>
<td>TEAM</td>
<td>regular meetings</td>
<td>26 meetings</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>workshops &amp; planning</td>
<td>4 days</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>Principal</td>
<td>2</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>Vice principal</td>
<td>6</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>District admin.</td>
<td>3</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>Staff meetings</td>
<td>5</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>Pro-D days</td>
<td>3</td>
<td>Y</td>
</tr>
</tbody>
</table>

silence in this matter became a form of data. I also thought that other teams in the school (if any emerged) and teachers not involved in teaming at the school might provide important perspectives. For these reasons, I wanted to be familiar
with the school beyond the specific context of team meetings.

My chief means of achieving this familiarity was establishing a presence in the school beyond the classrooms and meetings of the team. For example, each day from 10:35 to 10:55, Waterfront had a recess (See Appendix A). Many of the teachers spent this time in the staff room, and I joined them whenever I was at the school. Also, the staff room served as a lunch room from 12:30 to 1:10, and I ate my lunch with the teachers. Often one or more of the team members would join me. Frequently other teachers in the vicinity would enter into discussion with me. In these numerous informal exchanges, I learned about the staff perspectives on a host of issues. When I was waiting to observe or interview, I generally stationed myself in the staff room. This allowed conversations with teachers and other school personnel; furthermore, I gleaned a good deal of information from the postings on the staff room walls.

In addition to these informal interchanges, I attended (but did not participate in) a number of staff meetings and school events. I joined the grade seven teachers in two meetings and the grade eight teachers in one. I attended five staff meetings and three professional development days involving most of the staff. I attended two school assemblies, two "electric lunches" (student performances of music or drama), and one organized competition between advisory groups.

Teachers

To understand the meanings teachers assign to their actions, it is important to interview them. I used two basic levels of interviewing: first, interviews early in the study helped build a picture of each teacher's perspective on planning, interdisciplinarity and teaming; second, regular follow-up interviews after teachers engaged in collaborative planning helped me understand the meanings
they made of their experiences. At the conclusion of the study, I interviewed each teacher in depth to reflect on the experiences of the year.

My interviews with the teachers were what Yin (1989) calls "focused interviews," i.e., the questions were open-ended, but with a particular direction derived from the concerns of the study (e.g., planning and collaboration issues), generally written on an interview guide (Lofland & Lofland, 1984). Indeed, I rarely had any questions articulated, but I worked from a list of issues I wanted to discuss. While I occasionally omitted a point because of this lack of standardization, this was not a problem since the long-term nature of the study allowed me to approach the teachers again and again, often very briefly, to clarify points. As the analysis emerged, I used interviews for respondent validation of researcher observations and assertions. The tone and style of interviewing was conversational (Burgess, 1984), following themes and topics of interest.

In addition to more formal interviews, I engaged in conversation with the teachers throughout the day when I was at the school. Before classes began, at breaks between classes, often during classes, at recess and at lunch, I spoke to whichever teacher(s) I was with. The ongoing relationship, the evolving conversations, seemed to me to be as important as more formal interviews.

I also asked each teacher to keep a brief diary of exchanges they had with team members related to their planning work or other relevant issues. I gave the teachers small notebooks, thinking that their unobtrusiveness might make them more convenient. I knew that I could not be present at every interaction that involved some aspect of planning (Jeremy and Trent, for example, often rode to work together, discussing school issues). I hoped these planning diaries would also provide the basis for further interview questions. Unfortunately, while each teacher took the notebook from me and agreed to use it, none of them ever
reported writing anything in it. I had emphasized to them that I did not want to add to their paperwork load, a theme they had mentioned to me from the beginning, and perhaps this influenced them not to keep the diaries. In any event, the diaries provided no data, and I did not want to pressure the teachers to do something they found inconvenient.

Teacher and Team Products: Documents and Projects

To develop multiple sources of data, I analyzed artifacts produced by the teachers and the team. I originally conceived of this as emphasizing team productions (such as letters to parents about interdisciplinary activities or displays of interdisciplinary projects), but the rarity of such items caused me to focus more on individual teacher artifacts.

Documents and artifacts provide a source of data quite different from the observations and interviews, strengthening the research design through multiple data sources. Yin (1989) lists three key elements of data collection for a case study: 1) using multiple sources of evidence; 2) creating a case study data base; and 3) maintaining a chain of evidence. The analysis of documents and artifacts enhances all three of these elements.

I collected a variety of teacher documents. These included worksheets from each teacher, unit overviews, plan book entries, and course syllabi. I maintained a file of these documents, using photocopies where possible or transcribing the documents in my fieldnotes. I used these documents, for example, in establishing a portrait of each teacher as an instructional planner.

I also collected documents that applied more generally to the team or the school. For example, I obtained letters sent by the team to parents regarding team activities (though these letters took the perspective of subject-based activities).
Also, I collected school newsletters, schedules, meeting summaries, and so on. All documents were filed in a Hypercard stack (Macintosh data processing source) indicating date, source, event, significance and a summary of the document. (See Appendix B.)

While I had anticipated the possibility of team documents or student projects incorporating different subject areas, none of these materialized. Thus, though I examined student projects created in each class, I have no examples of student projects resulting from team activities.

Sampling Frame

The data sampling for this study went through roughly three phases (Figure 6). First, following entry to the site, the research focused on individual teachers. While I attended team meetings, the early emphasis was on understanding each teacher's perspectives on planning and interdisciplinary teaming. This phase involved participant observation in the individual classrooms and interviewing. I found that two of the teachers were reluctant to be involved in the study too early in the year; they wanted time to "get to know" their students. Thus, though I met with the team as early as 4 September, I did not observe Trent's class until 15 September, and I first observed Jeremy's and Catherine's classes on 20 September. Though I had planned to observe their classes only for the first month of the study, I continued to observe classes throughout the year, though less intensely. I completed the early in-depth interviews with each teacher by late October.

The second phase of the sampling involved the ongoing, regular meeting of the interdisciplinary team. I intended to begin this concurrently with phase one. However, the teachers did not begin meeting regularly until early October, when
they decided to make day one their regular meeting day. Even so, they decided not to meet on day one when other pressures or concerns intervened (for example, when parent conferences were looming). Furthermore, when day one fell on a Monday and Friday of the same week, the team met only on one of those days, usually the Monday.

<table>
<thead>
<tr>
<th>PHASE ONE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom observations</td>
<td>September 91-April 92</td>
</tr>
<tr>
<td>Interviews</td>
<td>September-October 91</td>
</tr>
<tr>
<td>Documents acquired</td>
<td>September 91-June 92</td>
</tr>
<tr>
<td>Initial team meetings</td>
<td>September-October 91</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PHASE TWO</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular team meetings</td>
<td>October 91-June 92</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PHASE THREE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem-solving planning</td>
<td>April 92</td>
</tr>
<tr>
<td>Workshops on integration</td>
<td>February and April 92</td>
</tr>
<tr>
<td>Planning sessions on themes</td>
<td>May-June 92</td>
</tr>
</tbody>
</table>

Figure 6: Sampling Frame

The third phase of sampling focused on the planning and teaching of interdisciplinary experiences. When the team worked specifically and systematically on interdisciplinary experiences (as in their joint work on problem-solving), I again increased my observation time both in classrooms and at the school. Also, I interviewed the teachers at about the time of the interdisciplinary work to understand their planning experiences and their perspectives on the interdisciplinary aspect.
This phase took a new direction beginning in May when the team decided to use released time supplied by a grant from the Ministry of Education to plan interdisciplinary connections for the next year. Thus, the team spent the entire day of 25 May, 1992, planning interdisciplinary work for the next school year. I joined the team for this full day of planning, producing some 31 typed pages of fieldnotes. I also joined them for two days of planning in June.

Methods of Data Collection

Fieldnotes

The field diary, containing observations and analyses, provides an important tool for the conduct of field research (Erickson, 1986). Burgess (1984) outlines three types of fieldnotes to include in the field diary: substantive, methodological, and analytic (pp. 167-174). Fieldnotes became an important link between other methods of data collection listed below.

Throughout the study, I kept a field diary. I wrote fieldnotes on legal pads, with wide enough margins to allow further notes on the same page. For example, my substantive observations on 2 October focused on a tape recording of common school sounds Jeremy was using in class. In the margin, I wrote a methodological note, reminding myself to ask about the source and circumstances of this tape. On 20 September, my substantive observations of Catherine's class concerned a lesson on vocabulary words. In the margin I made an analytic note that the events said nothing about planning, but developed a portrait of a particular kind of teacher.

More often than my marginal notes, I would bracket interpretive and reflexive comments within the text of my field diary. For example, when the team was arranging the details of a field trip on 29 January, I bracketed the following observation: "Interesting that each block is identified by a problem
Beginning in November, I altered my practice of writing field notes. I still kept the field diary on legal pads, but soon after each visit (that evening or the next day), I would type my field notes into a word processor. This allowed me to supplement notes with my memory of events, and it provided easier access to information. Sample fieldnotes are in Appendix C.

Participant Observation

Becker (1958) offers a useful description of participant observation:

The participant observer gathers data by participating in the daily life of the group or organization he studies. He watches the people he is studying to see what situations they ordinarily meet and how they behave in them. He enters into conversation with some or all of the participants in these situations and discovers their interpretations of the events he has observed. (p. 652)

Hammersley and Atkinson (1983) describe participant observation in this way:

The ethnographer participates, overtly or covertly, in people's daily lives for an extended period of time, watching what happens, listening to what is said, asking questions; in fact collecting whatever data are available to throw light on the issues with which he or she is concerned. (p. 2)

In this study, I viewed participant observation as topic-centred (Evertson & Green, 1986). The distinction is that rather than aiming for a general understanding of a culture, the researcher enters with a specific focus in mind: understanding the collaborative planning of an interdisciplinary team of teachers. Theoretical sensitivity, an awareness of important issues (Glaser & Strauss, 1967; Strauss, 1987; Strauss & Corbin, 1990) guides data collection in
participant observation and other qualitative research methods.

My participant observation activities occurred in the following types of situations: classroom work, team meetings, staff room gatherings, faculty meetings, professional development activities, hallways, and special events. I presented myself to the staff as a former middle school teacher doing research on interdisciplinary team planning. Students in the classes of the team members (the only classes I observed) knew that I was studying their teachers. They generally ignored me, though I noted two interesting developments. First, they appeared to be aware that I was not present as a disciplinarian. Thus, I noted times where students deliberately misbehaved and then looked at me to see how I would respond. I attempted to portray a neutral response. Second, as the year progressed, I noted that students increasingly addressed me as a resource. They asked me questions, read their work to me, and often knew my name.

My primary focus as participant observer was in the meetings of the teaching team itself. During team meetings, I sat with the teachers either in an isolated section of the staff room or more frequently in Catherine's classroom, where we pulled desks together so that we could be in close proximity. As the teachers spoke, I took notes. Since I had agreed to produce minutes for the team, the note-taking was unobtrusive. I also tape recorded some of the team meetings, after receiving the teachers' permission to do so. I generally did not speak much in these meetings, though there were times when the teachers directly drew me into conversations and times when I volunteered information or questions.

My perspective on these meetings and other interactions I experienced as a participant observer was derived from Blumer's (1969) notion that "... social interaction is a process that forms human conduct instead of being merely a means or a setting for the expression or release of human conduct" (p. 8, original
italics). In this sense, the meetings became a form of "joint action," which Blumer argues has a distinct character in itself as group members fit their action to one another. Furthermore, my research activity was a type of social interaction, thus a part of forming human conduct.

The strength of participant observation is that it can create a detailed insider's view, as the researcher attempts to gain the perspective of the group under study. Its weakness, according to Yin (1989), is potential for bias, though Wolcott (1975) argues that the personal involvement of the researcher in ethnography is necessary and that the question of validity is addressed by multiple "information-gathering devices" employed (p. 121).

**Interviews**

Interviews allow the researcher to probe informants for the meanings they attach to events and to corroborate the observations and assertions of the researcher (Burgess, 1984; Hammersley & Atkinson, 1983). Also, they allow the researcher to gain the specific perspectives (and meanings) of persons involved (Yin, 1989) and to gain access to situations or events that might otherwise be inaccessible (Burgess, 1984). I used both formal and informal interviewing in this study, ranging from focused to completely open-ended interviews. The conception of interviewing I employed was Mishler's (1986) notion of a speech act, as opposed to the stimulus-response model of standardized survey interviews. Mishler argues that interviews are a form of discourse, a joint construction of meaning (p. 52). Thus, the aim is not a standardized interview: "terms take on specific and contextually grounded meanings within and through the discourse as it develops and is shaped by speakers" (p. 64). A good example of this occurred when I asked Catherine a question about how she "justified" her participation in the Remembrance Day activity. I realized immediately (by her
tone of voice, facial expression and curt response) that the term "justified," which I had intended merely to evoke a description of her thinking, communicated judgment to her. My intended meaning and the meaning she made of the word jarred, and the rest of the conversation found me struggling both to win her trust and to understand her reasons for being involved in the project. In contrast, the conversation with Trent on the same subject became his narrating the genesis of the project, embedded in staff politics of the school.

Mishler advocates empowering interviewees by allowing them to tell narratives, since narratives are "one of the significant ways through which individuals make sense of and give meaning to their experiences" (p. 118) and by shifting roles from interviewer and interviewee to collaborators or learners and actors (pp. 122-132).

My role became that of learner. Accompanying the teachers as they taught, took breaks, and met with others, I participated with them in conversations throughout the days I was with them. Thus, the speech act Mishler describes characterizes our conversations--we constructed meanings through dialogue. Often these speech acts involved more than one teacher and myself, as conversations ranged over issues pertinent to the study (and a host of other issues as well).

At key moments in the study, such as the early part of the school year, a point where the team apparently shifted its conception of interdisciplinarity, and the end of the year, these conversations became more prolonged and formal. This formality was manifest in that I arranged special times to talk with the teachers alone, and I audiotaped the conversations, later transcribing the tapes (Appendix D). Still, I did not attempt to standardize the interviews, and I attempted to empower the teachers to tell their stories. (For example, instead of asking for a
checklist of personal information, I asked each teacher to tell the story of how he or she came to teach.)

As one method of data collection, interviews contribute to the multiple strategies that lend credence to field research (Burgess, 1984). Interviews alone are of limited value because they are "subject to the problems of bias, poor recall, and poor or inaccurate articulation" (Yin, 1989, p. 91). I discovered this in attempting to reconstruct the Renaissance Unit of the previous school year. My conversations with two of the teachers indicated a powerful influence on designing the unit by a presentation at a middle school conference. However, by examining the school calendar, the documents associated with a site development grant, and a student project left over from the Renaissance Unit, I was able to confirm that the conference occurred after the unit had been designed (which was the recollection of one of the teachers). This did not diminish the importance of what I learned about that unit from the interviews; indeed, the meanings the teachers derived from that experience surpass the data value of a reconstructed time line for the event. The point is that it is important to combine interviews with other means of data collection.

Document and Artifact Analysis

As described above, documents and artifacts provided an important source of data for corroborating other evidence. I collected whatever documents the teachers made available to me in their classes (generally worksheets and study guides). In addition, I asked to examine and/or photocopy planning documents of each teacher. Catherine, for example, gave me a photocopy of her unit plan for the fairy tale unit. This allowed me to explore her conception of what a unit consists of. Trent and Jeremy both let me examine their planbooks, selections of
which I copied into my fieldnotes. These documents aided me in clarifying events I had questions about.

I had anticipated a flow of documents between the team and the school administration. This, as far as I know, did not occur. I asked the teachers about any memos or communications they received from the office, and only once did they show me such a document, which I read and summarized in my fieldnotes. I did acquire copies of such official documents as staff meeting agendas, job descriptions, and school newsletters. I examined these for information pertinent to the issues raised in the study of collaborative planning of interdisciplinary experiences--specifically, issues of collaboration, planning, team teaching, and curricular integration.

In addition to these sorts of documents, I examined school artifacts. For example, one large poster in the staff room listed the various "personal growth plans" of the teachers, while another indicated the school concerns of staff members. Such artifacts helped me to ascertain the standing of such issues as team teaching and interdisciplinarity in the school. For example, of the 35 teachers listed on the growth chart, only three (the teachers in my study) indicated a desire to develop interdisciplinary teams; only two other teachers indicated anything having to do with integrating different subject areas. In situations like this, where I could not photocopy the poster, I described the artifacts in my fieldnotes. I described other artifacts that helped characterize the school: the posters and photographs left over from its previous life as a senior secondary school; the school motto painted over the entryway; the school mascot painted in the gymnasium.

Data Analysis

Ethnographic approaches have traditionally been viewed as appropriate to the
development of theory (Burgess, 1984; Glaser & Strauss, 1967; Hammersley & Atkinson, 1983). Thus, rather than imposing pre-established categories onto the data, much of the data analysis emerges in the course of a study such as this. Clearly, this is not to say that a researcher enters any given study with a "blank slate." The literature review for this study makes clear that issues such as the role of routines and activities in planning, the disposition of the school towards collegiality, and the team conception of interdisciplinarity, among many other issues, deserve systematic attention. By carefully attending to the questions raised by the literature review, I ensured that such issues would not be neglected. Neither can such issues dominate the study. To say that the analysis of data is emergent in a qualitative design is simply to argue for openness to the possibility of reframing questions and readjusting foci based on the realities one discovers in data collection (Evertson & Green, 1986; Strauss & Corbin, 1990).

Indeed, the analysis of data in field research is not a distinctly separate phase (Lofland & Lofland, 1984). As Hammersley and Atkinson (1983) put it,

It begins in the pre-fieldwork phase, in the formulation and clarification of research problems, and continues into the process of writing up. Formally, it starts to take shape in analytic notes and memoranda; informally it is embodied in the ethnographer's ideas, hunches, and emergent concepts. In this way the analysis of data feeds into the process of research design. (p. 174)

Ultimately, data analysis involves a careful rereading of all the data collected, with an attempt to identify analytical categories through a process of coding (Glaser & Strauss, 1967; Strauss, 1987; Strauss & Corbin, 1990). These categories reflect both the sensitizing concepts derived from the literature and the particular observations made in the field. The next task, according to Hammersley and Atkinson (1983) is to "begin to develop these into a theoretical
scheme: finding links between the concepts and adding new ones" (p. 180).
Throughout this process, one makes assertions and claims about the
phenomenon under study, chronicling the process through analytic,
methodological and operational memos (Strauss, 1987).

Central to this analytic induction (Denzin, 1989; Erickson, 1986) is a deliberate
search for disconfirming evidence and discrepant cases. A researcher must
demonstrate his or her attempt to disprove the emerging theory as evidence of
bias control.

As I indicated earlier, the data which I analyzed consisted of fieldnotes from
participant observation activity, notes and transcripts from interviews, and
documents and artifacts. I recognized that this data had undergone a degree of
analysis even in its collection. As Denzin (1989) puts it, "the sociologist creates
the world of observation; it does not exist independent of actions taken toward
it" (p. 236). And Herndl (1991) states it in even stronger terms: "The 'data' to
which we return to write ethnography is not an experience but the already
textual representation of fieldnotes" (p. 321).

Schatzman and Strauss (1973) redefine analysis "as the working of thought
processes rather than as a formidable academic abstraction" (p. 109, original
italics). They describe a range of acceptable analytic procedures, ranging from
uncodified, anecdotal analysis to converting fieldnotes to statistical data. The key
point of analysis, they argue, is systematic, self-conscious thought that interacts
with the data.

My general procedure in analyzing data followed recommendations for
I would, for example, read through a given set of fieldnotes, marking a code in
the margin when I saw an instance of a relevant category. This coding allowed
me to break apart the data in order to see more clearly what was there and it
served as a helpful tool in later returning to particular information. I found I needed to adjust my categories throughout the analysis, as I endeavoured to use the constant comparative method (Glaser & Strauss, 1967), through which the researcher refines categories. For example, I had coded instances of planning discussions of content (PLN.CNT) throughout the study. During the day-long planning session of 25 May, the team began to discuss themes, though this had not occurred before. Thus, I revised my initial categorizing of these instances as content to instances of themes (PLN.THEME), a subcategory of the former.

I made no attempt to convert categories into quantifiable data. That is, guided by the organizing questions (Chapter One) and the heuristic of the group effectiveness model (Hackman & Oldham, 1980), I looked for patterns in the collaborative planning of the team. The systematic exploration of these patterns (such as their process of deciding whether or not to engage in interdisciplinary work) constituted the data analysis and guided subsequent data collection. Following Strauss's (1987) recommendations, I engaged in a triadic process of data collection, data analysis, and memo writing. I often interrupted other work --such as coding or transcribing-- in order to write memos related to the study. In the end, I wrote more than 60 memos related to analysis.

An example of this coding concerned the examination of the planning processes of the team. Two approaches guided this analysis of data. To begin, I coded each team meeting for instances of explicit "moves to structure or organize the planning process." Such moves might consist of reminding team members of what activities they needed to perform (December 12) or questioning the need to meet (January 13). These explicit instances of structuring the planning process were rare. Also, I compared the general flow of meetings, looking for patterns that might illuminate what the teachers were doing. The basic ethnographic
question, "what's going on here?" undergirded this search for patterns.

To assist in this search for patterns, I analyzed each team meeting, categorizing the interactions that occurred according to the manifest function of the team activity and the level of collaboration. For example, the team meeting on November 20, 1991, (see Appendix C) unofficially began with Catherine and Trent discussing a letter they had received from the principal concerning their work with the Remembrance Day Ceremony. I categorized this as a social/emotional support team function, and their level of collaboration, based on Little's (1990b) four categories, was storytelling and scanning. From there, the meeting proceeded to a discussion of Trent and Jeremy's work together on the Vikings. I categorized this section of the meeting as an interdisciplinary team function, and the level of collaboration as sharing. Thus, by examining the topics/issues the teachers discussed (including any action they proposed or took) and the degree of collaboration, I was able to codify the progress of the team meetings. By comparing all team meetings at this level, I recognized certain patterns. Figure 7 shows the coding for November 20, 1991.

A note of caution is in order. This classification appears to imply a precise quantification scheme. This is not my intent. For example, while a particular meeting may show a great number of instances of one kind of interaction as opposed to another, it would be incorrect to assume this accurately represents the proportionate focus of the meeting. The team meeting on May 4, 1992, has three sections coded as problem solving at the joint work level, but the bulk of the meeting time is spent on the one instance of problem solving at the sharing level.

As I began to build conceptual linkages (Schatzman & Strauss, 1973) between categories and answers to the research questions, I deliberately sought discrepant
cases (Erickson, 1986) in an attempt to sharpen the analysis. For example, having

devolved an explanation for why the teachers decided to engage in interdisciplinary experiences, I looked for instances where their actions did not fit with my explanation. In this, I was following Denzin's (1989) injunction to focus on negative cases. Indeed, by examining such cases, I was compelled to modify my initial formulations about this important question.

Validity

The central place of meaning in qualitative research sets the conditions of validity. Different researchers will interpret events differently; thus, the
emphasis is on designing research that will be comprehensive enough to justify findings. One does not ask of interpretive research whether another investigator would have come up with the same conclusions, but whether an independent researcher would "make conceptual discoveries that empirically or logically invalidate" those of the study (Schatzman & Strauss, 1973, p. 134).

Triangulation through multiple sources of evidence and through sampling in a variety of times and settings helps to provide verification, though it raises the possibility of contradictory evidence as well (Mathison, 1988). Burgess (1984) sees validity arising from *multiple strategies*, a term he finds more appropriate to qualitative research than *triangulation*: "I suggest the term *multiple strategies* to allow the researcher to use a range of methods, data, investigators and theories within any study and so overcome any problems of bias" (146). Even so, ethnographers must continually acknowledge their contributions to the observations they make (Herndl, 1991). The events which ethnographers strive to record accurately are transformed in this transcription, and thus no longer "valid" in the traditional ("objective") sense of the word. Van Maanen (1988) argues that there is no transparency to ethnographies: "Ethnographies of any sort are always subject to multiple interpretations. They are never beyond controversy or debate" (p. 35).

Validity, however, may take on a meaning different from its positivist tradition in the context of qualitative research. Without diminishing the importance of grounding interpretations in a variety of sources and data collection methods, a concession to what Blumer (1969) refers to as the "obdurate" character of the empirical world, we might rethink the issue of validity in terms of relative plausibility. As Mishler (1986) writes, "It has become clear that the critical issue is not the determination of one singular and absolute
'truth' but the assessment of the relative plausibility of an interpretation when compared with other specific and potentially plausible alternative interpretations" (p. 112).

Howe and Eisenhart (1990) argue that educational research should be judged according to "logics in use" and whether or not such research successfully investigates real problems. They reject the criticism of research for not conforming to standards of purity within a research tradition (such as Rist's criticism of blitzkrieg ethnography). Specifically, they defend as appropriate the use of ethnographic methods to examine teachers' application of planning models. They build standards for judging research around a different question:

Failing to follow a given theoretical perspective or methodological convention does not necessarily diminish the warrant of the conclusions drawn. . . .The question that needs to be answered instead [of "is this good ethnography?"] is more general: Are warranted conclusions obtained about some important educational question(s)? This is the question that ought to frame the pursuit of standards for any educational research. (p. 6)

**Multiple Strategies in this Study**

To seek warranted conclusions about an important educational question, I employed the multiple strategies described above. First, I observed and conversed with the teachers over the course of ten months and in a wide variety of contexts. In contrast to a study that draws conclusions based on observing a single meeting of various teams (e.g., Bell, 1990), my conclusions about team meetings are based on participant observation activities in more than 26 such meetings. Second, I checked my observations and conclusions from different perspectives by using differing methods of data collection. This builds on Denzin's (1989) kaleidoscopic conception of the research act: "Methods are like the kaleidoscope: Depending on how they are approached, held, and acted
toward, different observations will be revealed" (p. 236). Participant observation, interviewing, and document and artifact analysis became different ways of revealing observations to me.

An important means of checking my observations was respondent validation (Hammersley & Atkinson, 1983). I produced meeting summaries or minutes which I gave to the team, and which they could ask me to correct if there were errors. They did not offer any alterations. When I was uncertain about an observation, I questioned the teachers. For example, I only once noted a sort of agenda used by the team for a meeting. I asked Catherine about this later, and she said she was not using an agenda, but a list of student names she wanted to discuss. My observation in this case was confirmed by the teacher. At a much deeper level, after I had constructed planning portraits of each teacher, I gave these descriptions to the teachers to read, inviting them to correct or add to my descriptions (a technique used in Brown, 1988). This corroboration allowed me to alter my descriptions and better describe the teachers' planning.

Wolcott (1990) provides a list of practices to help ethnographic researchers face the implicit challenge to validity: talk little, listen a lot; record accurately; begin writing early; let readers "see" for themselves; report fully; be candid; seek feedback; try to achieve balance; and write accurately. Although he ultimately rejects the "absurdity of validity" because of actors' multiple meanings for any given event, Wolcott's list of practices served as a helpful reminder for me of ways to give credence to my research.

**External Validity**

External validity refers to the generalizability of the results of a study (McMillan & Schumacher, 1989). In case studies, generalizability involves several considerations. First, the onus for making decisions about
generalizability is on the readers of the research (Connelly, 1978; Kennedy, 1979). This leads to the second consideration: the researcher is obligated to clarify both the subjects of the study and the methods of the research in order that readers can make decisions about the applicability of the research to their situations. Finally, as Yin (1989) points out, the findings of a case study are generalizable not to a statistically identified population, but to theoretical propositions.

I have clearly identified the subjects of this study, who were selected on the basis of criteria designed to enhance its generalizability. I have also described the research procedures and methods.

**Reflexivity**

An important feature of field research is the researcher's self-consciousness about his or her emerging ideas and effects on the research situation. I worked to achieve reflexivity in several ways. First, I monitored my reactions in the course of participant observation and interviewing. For example, I noted when I thought a teacher might be making a comment for my benefit or when I was growing weary of note-taking. Furthermore, I looked for clues as to the teachers' responses to me—things like the first time we ate lunch together or nonverbal signals, such as when Catherine put her hand on my shoulder. Second, I discussed with the teachers the effects of my participation in the study. Each teacher, for example, mentioned that the team probably met more regularly because of my work with them. In addition to these discussions, I consciously sought evidence of my effect on the team. For example, I noted times when the teachers were not scheduled to meet, but they did so anyway. I suspected this might be due partly to my presence, and confirmed this with the teachers in later conversations.
Finally, reflexivity meant monitoring the effects of my own experiences and expectations. I had worked in an interdisciplinary team as a middle school English teacher, and I realized that experience might potentially enhance or limit my research. My familiarity with middle schools (both through experience and research) helped me empathize with and understand the teachers. By studying a school in a different setting (Canada vs. the U.S.; set in a metropolitan area vs. a small town), I found it relatively easy to "make the familiar strange" (Erickson, 1986, p. 121), an important element in conducting interpretive research. On the other hand, I had to be cautious not to read my own experience in interdisciplinary work into that of the Waterfront team.

Reciprocity

A final consideration relating to validity is the issue of reciprocity. Whereas the researcher has something to gain in the publication of results, ethical considerations require that the teacher participants in the study not be identified (Erickson, 1986). Reciprocity refers to what such teachers might gain through their participation. Bolster (1983) describes one form of reciprocity as the internal benefits teachers receive in their participation in the research. Specifically, Bolster maintains that there is good evidence that such teachers "develop more differentiated and reflective views of their teaching" (p. 306). Clark (1988) argues that teachers benefit in terms of professional development by virtue of studies of teacher planning.

In addition to these forms of reciprocity, I strove to find more practical ways to thank the teachers for their participation. Some of the specific activities I engaged in were as follows: typing worksheets or scripts, photocopying materials, acquiring materials from the university library, loaning materials I
owned, assisting students, monitoring students on a field trip, producing minutes for the team meetings, and running minor errands. I spent one full day, for example, helping to type the script for a Remembrance Day ceremony. I did not, however, reciprocate by attempting to guide the teachers in their interdisciplinary work. Although I was constantly reading information related to this, I did not facilitate the team's work in this area.

Summary

This chapter has clarified the research perspective I adopted to describe and analyze the collaborative planning of interdisciplinary experiences by a middle school teaching team. I explained the rationale for using a case study, the site selection and entry procedures, the sources and methods of data collection, the sampling frame of the study, and the approach to data analysis. Furthermore, I addressed the question of validity for field research. I concluded with a discussion of reciprocity in field research.
Chapter 4
THE WATERFRONT TEAM

Before reporting the findings regarding the collaborative planning of interdisciplinary experiences, it is important to establish a description of the team of teachers. As a case study, this work requires adequate description so that readers can make judgments about its transferability to specific contexts (Connelly, 1978; Kennedy, 1979). The following sections describe the school in which the team operated, the team in question, and the individual teachers who made up the team.

Waterfront—a Middle School

While middle schools have become quite popular in the United States, replacing 90% of the nation's junior high schools in just two decades (Wiles & Bondi, 1986), the concept is relatively new in Canada (Gardner & Carpenter, 1985). Educators in Canada are increasingly aware of the importance of middle schools and preparing teachers to work in them (Caissy, 1985). The middle school has "not developed a strong formal organizational structure" in Canada, but the underlying principles of the movement are gaining acceptance (Noonan & Sarrick, 1985, pp. 19-20).

Waterfront Middle School (a pseudonym) is one Canadian school that identifies itself with the middle school movement. Situated in southwest British Columbia, the school is part of a school district that serves a "wealthy, stable community" (Annual Report, December 2, 1991). The average income of private households in the community is above provincial average incomes, and the level of education of community members is much higher than the
Waterfront proudly proclaims its allegiance to what teachers and administrators identify as the middle school philosophy: "We at Waterfront understand that our students have unique academic, social-emotional, physical and developmental needs and we will strive to provide a transitional programme to meet these needs" (Waterfront Middle School Newsletter #1, September 14, 1990, p. 1, taken from the mission statement of the school). Part of the school's official approach to addressing these needs involves "interdisciplinary goals" and "interconnections" among subject areas. This middle school philosophy was posted in the staff room for much of the school year, and teachers frequently referred to it in meetings as they made decisions or argued issues.

However, as happened elsewhere, the middle school philosophy appears to have been an administrative convenience for the school district rather than a driving force in educational reform. Wiles and Bondi (1986) attribute the rise of middle schools in the U.S. to pressures from overcrowding and desegregation rather than educational logic. Beane (1990) adds to those reasons the impact of information about adolescent development, and he argues that the changes brought about by the middle school movement have been largely improvements in school climate. Hargreaves (1986) ascribes the rise of middle schools in Britain to administrative expediency in the face of the demands made by the change to comprehensive schooling. The aims of middle school educators seem in each case to have been added as legitimation for decisions made apart from any "middle school philosophy."

Issues other than middle school philosophy influenced Waterfront's school district in the creation of the middle school. According to Waterfront's vice
principal, the district's enrollment dropped about 50% in the years from 1970 to 1980. The district began to close schools and initially moved grade-seven students into secondary schools. Ministry of Education figures indicate a 40% drop in enrollment from 1970 to 1983, when the district did close some elementary schools and create a number of junior-senior secondary schools. Continued declining enrollment, the vice principal said, meant that certain programs could not be supported in all the secondary schools. Thus, beginning in the late 1980s, Waterfront became a middle school housing grades seven, eight and nine, while another secondary school reduced its grade configuration to ten, eleven, and twelve. As a district coordinator put it, Waterfront became a middle school overnight, and not for educational reasons, though that was the "pitch" made to parents.

This is not to say that Waterfront neglected its development as a middle school. Each summer, Waterfront administrators attended conferences or training sessions on developing a middle school. The district brought in consultants to help teachers with understanding the needs of early adolescents, creating special programs, teaming, and teaching interdisciplinary units. Arguably, the school has not been transformed completely--the hallways, for example, still bear group photographs of the secondary school graduating classes and playbills from the secondary drama performances--but it is on its way.

The Waterfront Team: T8

The Waterfront Middle School Student Handbook '91-92 promises grade seven students they will be with one teacher for three or more blocks and grade eight students they will be "assigned to a team of four teachers who will teach them most of their academic subjects" (p. 5). In reality, as the official schedule
reveals, only two of eight divisions of grade seven students remained with one teacher for three blocks in 1991-92. No grade eight students were assigned to a team of four teachers. Approximately 112 grade eight students shared three teachers for their English, science and social studies courses. These three teachers—Catherine, Jeremy, and Trent—were the only teaching team at the school in 1991-92, and this team (referred to as T8) was the focus of this study.

Waterfront began its transition from a secondary school (grades seven through 12) to a middle school (grades six through nine) in the fall of 1988. At that time, there were no teaching teams. The following year (1989-90), Catherine and Trent joined two other teachers in a team dealing with four blocks of grade eight students. The next year (1990-91), Jeremy and a language teacher replaced two of the original teachers, joining Catherine and Trent. In the third year of T8's existence (1991-92), it became a team of just three teachers: Catherine taught English, Jeremy taught science, and Trent taught social studies. They shared four blocks of grade eight students. Thus, while each teacher dealt only with students from the grade eight team in blocks A through D, one-fourth of the team's students was dispersed to other teachers (e.g., home economics, math, physical education, language, art) during each of those blocks. This scheduling of students created logistical limitations for T8 in its pursuit of team activities. For example, in arranging a field trip or large-group presentation, the team had to request permission of other teachers to release that portion of their team of students that was dispersed to other classes for that period. This logistical problem consumed large portions of T8's meeting time.

The teachers in T8 shared a preparation period during E block. The school's timetable consisted of eight blocks that were repeated three times in four days (see Appendix A). The T8 teachers all taught grade eight students in blocks A through D and grade nine students in blocks F through H. They used two of
their three preparation periods in each cycle for their individual work, and they met as a team in the preparation period on day one of the cycle. However, when day one fell on a Monday and Friday of the same week, the teachers met only during one E block. (See Figure 5, p. 74 for a summary listing of the team meetings.)

The teachers in T8 described their team experience as the most positive aspect of working at Waterfront. On several occasions, the teachers made comments like the following: it was the team that kept them from looking for a new school; it was the team that kept them satisfied and enthused; it was the team that made the profession rewarding in that it allowed a constant questioning and rethinking of the purpose of teaching; it was the team, not the school, with which they identified. Indeed, in May they became "champions" of teaming at the school when they presented reasons for teaming to the grade seven teachers, who were considering the option for 1992-93. They obviously enjoyed one another's presence and admired each other as teachers.

Strong as their team loyalty was, they were still, as Catherine pointed out in a team meeting in June, individuals with their own expectations and concerns. In continuing the description of the team, the next section describes the individual teachers.

Team Members

Catherine

Catherine majored in English in university in the early 1960s, and she didn't give a great deal of thought to a career at that time. As she put it, "I sort of naturally fell into teaching because that's what a lot of women did . . . with an English degree." She taught secondary English for three years before leaving the
profession to devote herself to child-raising. When she returned to teaching, she taught grade five students for nine years, three of those full time and the remaining half time, when she shared her job with another woman. Catherine transferred to a secondary school for two years before taking a one-year leave of absence. Though Catherine considered other career options during her leave, she chose to return to teaching: "[I] decided that when the new school came up at Waterfront, that I would go back and that I would find it exciting being a part of a new concept, the middle school."

Catherine was clearly a leader at her school: she chaired the staff committee, acted as leader of T8, and served on a variety of other committees, including the special education and English as a second language committees. In her capacity as leader of T8, she was also "strand leader" for the humanities at grade eight and a facilitator for various staff activities. Catherine was also an officer in a professional association in the province.

Catherine's classroom was on the first floor of the three-story classroom wing of the building. On her walls, she placed photos of students and samples of student work, generally artistic creations or interpretations. Catherine indicated she has been influenced by the ideas of Nancie Atwell (1987), and she often conducted her classes in workshop format--a "reader's workshop" or a "writer's workshop," including mini-lessons at the start of a period followed by work time that featured a high degree of student interaction. Catherine's obvious love of literature was manifest in her focus on getting the students to read and in her frequent practice of reading aloud to her classes. Especially as she read, Catherine gestured dramatically and modulated her voice enthusiastically.

A key aspect of Catherine's English class was her use of reader response theory. She structured her work around the idea that students' reactions to what
they read are central to understanding. For example, in the written description of the "reader's workshop" which she gave to the students, Catherine built the unit around letters the students were to write to her and to others. Here is how she guided them in writing the letters:

In your letters talk with us about what you've read. Tell what you noticed. Tell what you thought and felt and why. Tell what you liked and didn't and why. Tell how you read and why. Tell what these books said and meant to you. Ask questions or for help. And write back about your ideas, feelings, experiences, and questions. (Student handout, p. 1, original emphasis)

This particular unit was not unique in this respect. Catherine had her students maintain a response journal throughout the year, often asking students to react to what they were reading or discussing in class. Other samples of her unit guides or worksheets featured elements of response, such as when she asked the students to compare their opinions with those of a short story writer or when she had them respond to a particular sentence in The Outsiders.

The tone of her class reflected this concern with student responses. Rarely did Catherine conduct a class which centred on the accumulation of information. She invited opinions and responses from the students. For example, after she had the students simulate through a dramatic activity the experience of being on a crowded fishing boat, she said, "Now, I'd just like some words to describe how you feel . . ." During a writing work session, I watched her checking students at computer terminals, and I noticed her asking questions like this: "How do you feel about your story?"

This is not to say that Catherine focused only on feelings. She taught the students vocabulary words, punctuation and spelling principles, grammatical concepts, and reading and research strategies. In her eliciting of student responses, she clearly guided them to a greater understanding of important
concepts. For example, when she elicited responses to a novel, she equipped her students with concepts like predicting. When a student would say "I think" about a character's possible action, Catherine would rephrase the comment in a way that gave the students access to a more general concept--"So you predict that . . ." But even in the less response-based aspects of her class, Catherine continued to connect to student concerns. For example, she would demonstrate the meanings of vocabulary words by creating sentences about the students' situation. Students appeared to feel free about sharing their feelings even about such issues as punctuation, as when a student complained about feeling betrayed by elementary teachers who taught her that apostrophes always meant possessives.

Catherine did not assume an authoritarian role, either in terms of discipline or subject expertise. She tolerated a noisy class environment, often ignoring misbehaviour, though never to the extent of losing control or endangering someone. She took an approach to discipline where she praised the positive behaviour and, as much as possible, ignored the negative (though she did move and remove students when they were too disruptive). When questions arose regarding the subject at hand, Catherine often turned over the question to students in the class rather than answering herself. For example, a student asked about why a particular character had not been killed in the novel they were reading, Catherine's response was to find out what other students believed about this--she did not offer an answer herself.

Catherine said she loved being on a team: "So when I had the opportunity to work on a team, I jumped at it because it gives you so much moral support." She obviously respected and enjoyed her team members, speaking highly of them and their teaching abilities.
Jeremy

Jeremy earned a degree in science and worked for a year before deciding to enter a teaching certification program. He thought teaching offered him the kind of human interaction he wanted in his career. He received his first teaching position at Waterfront during its second year as a middle school.

His classroom was on the third floor of Waterfront, directly above Trent's. The typical paraphernalia of science classes adorned the room: lab tables with gas nozzles, shelves bearing scientific models (skulls, a fish skeleton) and books, a refrigerator, a large glass case for rodents, which stayed empty for most of the year. Throughout the year, various student projects filled whatever space was available. These were generally colourful posters with few words, an aspect of Jeremy's teaching that he says has developed since joining the team: "I've been influenced by Trent in that."

Jeremy liked to break his class periods into several different activities. Typically, he started with a discussion of some issue of relevance to the students. As much as possible, this discussion would be science-related, such as the birth of quadruplets to a 15-year-old girl or the treatment of killer whales at the local aquarium. Sometimes the opening discussion focused on school issues, such as the advisory tug-of-war competition or the grade-nine protest walkout. Occasionally these discussions were more personal--focusing on Jeremy's relations with other teachers. The important point is that in these discussions, Jeremy invited student input and ideas and personalized his subject area. Jeremy said he finds the lack of opinions a major drawback to science teaching, and he attempts to compensate for this.

Following his initial discussion, Jeremy generally explained the activities of the day. Often this was followed by a demonstration and then students worked
in a hands-on fashion. Jeremy restricted the recitation mode of teaching to very short segments, and even then he continually asked for students to participate by answering questions.

Jeremy expressed some dissatisfaction with the science curriculum and textbook. Through his professional reading and classroom experience, he said, he has found that students at this age tend to be interested in biological sciences and anything having to do with the environment, whereas physical science is too abstract and easily turns students away from any interest in science:

You know . . . what they say basically is that there'll be time for them, you know, if we still manage to keep them somewhat interested in science, by the time they get into grade ten or 11, they will be able to do some of that more abstract science. . . (Interview, October, 1991)

Thus, Jeremy attempted to focus on those aspects of science the students find most interesting, hoping to keep their interest alive long enough to allow some of them to consider science careers. Of course, there were elements of the curriculum that required him to teach concepts like properties of matter or aspects of chemistry. In these areas, Jeremy tried to keep the students actively involved through a variety of hands-on activities, especially labs. Many of his worksheets, for example, were lab guides asking students to find information through various activities, such as determining the mass of different items. He did, however, teach in other ways. For example, his worksheet on the brain involved reading a guide and labelling a diagram in order to answer a set of questions as homework. Also, he gave students a study guide for chapter one of their text which asked them to skim the chapter, copy headings, and answer questions about the reading.

The tone of Jeremy's class might be characterized as relaxed and informal. Because of the emphasis on hands-on activities, students seemed somewhat
impatient to be up and moving. There was a good deal of interaction among the
students and between Jeremy and the students during the lab activities. Jeremy
skillfully encouraged students to raise questions about their observations and to
explore areas of interest. For example, when two of his students remarked on
the irony of a tobacco advertisement in a science magazine, Jeremy urged them
to do a special project comparing the health consciousness of scientific as
compared to other magazines.

Like Catherine, Jeremy was an enthusiastic member of T8. As a relatively
new teacher, Jeremy found a sense of belonging more in the team experience
than in the school as a whole: "It's one of the best things about being at this
school for me," he told the grade seven teachers at a meeting where they were
considering teaming. When a position on the team opened after Jeremy's first
year at Waterfront, he felt quite attracted to it:

Trent and I were car-pooling at that time, so we decided to, you know he
asked if I was interested and I thought, you know, it sounded like a good
opportunity to . . . have that structured time to actually talk with some
other teachers about students and whatever it involved. We had, at the,
one of the middle school conferences we had, they had talked a little bit
about teaming. You know, and so I saw it more in terms of what you
could do with the integrated approach. (Interview, October, 1991)

The car-pooling arrangement with Trent continued throughout most of the
year, and became what Trent referred to as a 30-minute meeting every morning.

Trent

Trent came to Canada from England to pursue a doctorate, though he did not
go beyond his work on a master's degree due to the obstacles he encountered. He
went through teacher certification, but despite a master's degree in European
history and another in Canadian history, he could find no jobs in the area. He
worked as a curator of a museum and as a curriculum researcher and textbook author for a number of years before securing his position at Waterfront in January of 1988, the last year the school was a senior secondary school.

Trent's fondness for teaching social studies was apparent both in his classes and in his conversations. "The wonderful thing about teaching social studies," he claimed, "is that everything is relevant." He willingly shared his enthusiasms with other teachers, at times seeking to influence seasoned veterans. For example, he got a senior member of the department to try a project approach to teaching the Viking period, and he hoped to see the approach make headway into the teaching of grade nine students. Trent described his method of sharing teaching techniques like this: "The way I do it is I go tell others what I'm doing" to see what develops. If the other teachers express an interest, the conversation develops and there's a beginning to sharing. If not, Trent said, then it stops there.

Trent served as team leader for T8 in 1990-91 and as a "team leader" for grade nine in 1991-92, though the grade nine team existed only on paper as an administrative unit. Trent's confidence and leadership at the school strike an observer as based on more experience than his brief four and a half years as a teacher. However, as Trent put it, "when you're writing a textbook, although you don't actually have the children in front of you, I mean physically... a sense of the classroom was constant in what I was developing." He incorporated important concepts into his textbook that now appear in his teaching: issues like problem-solving, decision-making, and role-playing (the "identity" approach). I once remarked to Trent that it was ironic that he, a textbook author, relied very little on a textbook for his instruction. He disputed the use of the word irony, saying the only textbook he's seen that serves his purposes is the one he wrote—but that was for elementary students.
The classroom culture Trent created involved a great deal of give and take between himself and the students. Whereas one might expect someone with his expertise to lecture students, Trent did not use this teaching approach. Rather, he carefully guided the students through the use of questions:

My questions are chosen in such a way that I've got a series of blocks, building blocks, that, ah, no matter how they answer the question, if they answer it honestly, and don't . . . try and undermine the class, these questions inevitably lead to, ah, the general conclusion that I want them to get to. (Interview, October, 1991)

Concerned that the students make connections between their lives and the material they were studying, Trent emphasized connections at many different levels: between units in his course, between this course and grade seven social studies, between his course and others the students were taking, between current events and history, and so on.

Right answers were not Trent's focus. When I asked him about some students' copying answers from the board rather than finding them in the text, he responded that they would all get the same information eventually anyway. What is important, he maintained, is being able to use the information. To that end, Trent encouraged his students to question what they saw or read, rather than accepting something just because it was in a film or book. Trent once told another teacher in the staff room, "That's the premise of my year--'Check it out.'"

Part of "checking it out" for Trent was getting students to work with rather than memorize information. A typical technique Trent used was to give the students a series of questions about an issue or period on one side of a worksheet and a picture with blank space beneath it on the other. The students acquired the information to answer the questions--most often with Trent's help in class
discussion--and then they had to write up an explanation or description of the picture based on their answers (see Appendix E).

He also allowed the students to control their learning to a great extent. For example, the major project for the Anglo-Saxon unit he taught was a museum-like display of student projects. Students selected their area of interest, based on classroom brainstorming, and produced displays using criteria they developed in classroom discussion. "Producing work for me is meaningless. They have to produce for others," Trent said. The test for the unit involved writing about what they had learned both from their own projects and those of their peers.

Trent, like Catherine and Jeremy, championed the team as a source of support and energy. He told the grade seven teachers that the benefits of being on a team are "immeasurable," and that because of the team "I bounce in every morning."

Summary

Waterfront Middle School, established in 1988, reflects other middle schools in that its commitment to an educational philosophy, though strong, appears to have been an afterthought to the expedient solution of unrelated problems in the school district. The school has worked hard to become an effective middle school, especially through bringing in authorities to help its development. Teaming at Waterfront, a matter of official policy, occurred only in one group of three teachers sharing grade eight students during 1991-92.

The members of T8 were all committed, energetic teachers. Two of the team members were leaders of strands in the school; the third assumed no such leadership role. The team members expressed admiration and affection for one another, and they confidently asserted that teaming was the best aspect of being at Waterfront for them.
Chapter 5
FINDINGS

This study examined how a middle school team composed of teachers from different subject areas collaboratively planned interdisciplinary experiences. Data were collected using fieldwork research methods. Data analysis involved categorizing and comparing patterns of interaction, based on suggestions in the literature and emerging concepts in the study itself.

The findings are presented so that each section addresses a question (or part of a question) raised in the introduction.

1. How do the differences among the team members affect their collaborative planning? The first section examines how the teachers of T8 individually approached teacher planning, focusing on the differences that might affect collaborative planning.

2. How do the teachers' conceptions of interdisciplinarity and the purpose of teaming affect team planning activities? The second section explores the teachers' conceptions of the purposes of teaming to situate their work in interdisciplinary planning. Following this, I examine the teachers' conceptions of interdisciplinarity, and in particular, the evolution of conceptions through the year. A third element of this topic did not arise from the original research question. However, long-term planning for interdisciplinary experiences emerged in the data as distinct from other instances of collaborative planning; the fourth section examines this.

3. What do the team members recognize as opportunities to integrate their subject areas? The fifth section examines why teachers decide to engage in interdisciplinary experiences, with special attention to the role of the subject area.
4. **What planning processes or models does the team develop or adopt?** The sixth section presents data on the planning process the team used.

5. **What planning concerns do the collaborating teachers express and how do they deal with these concerns?** Data on expressed and manifest concerns are examined, particularly in terms of what the data reveal about collaborative planning.

6. **How do characteristics of the school influence collaborative planning and the team's response to opportunities to integrate subject areas?** The final section presents data regarding the team's interaction with and perceptions of the school at large.

The argument of the dissertation builds upon the interconnections among these exploratory questions. Specifically, in this report of findings, I argue for a view of the middle school team's collaborative planning of interdisciplinary experiences as professionals' response to competing demands. Planning interdisciplinary experiences, these teachers faced competing demands from curriculum guides, pressures to integrate curricula, multiple purposes of teaming, and specialists' conceptions of what learning in their subject areas means. The teachers did not respond to these demands as middle school rhetoric might predict, by creating "interdisciplinary thematic units." Instead, the teachers engaged in dialogues about their subject areas, learning from one another, and making professional judgments about the best ways to create interdisciplinary experiences. The dissertation points to the need to examine the context of a team's work, both in terms of the team's understanding of its task and in terms of the organizational consequences of creating interdisciplinary experiences.
Individual Teacher's Planning Compared

Researchers of teacher planning have identified five levels of planning: yearly, term, unit, weekly, and daily (Yinger, 1980). These levels provide an organizational scheme for comparing the individual planning practices of the teachers in T8, which were examined to explore how the differences might have an impact on collaborative planning. In contrast to earlier researchers (Brown, 1988; Yinger, 1980), the data in this study indicate that only three levels of planning were considered by these teachers: yearly, unit, and daily. Differences among the teachers as planners were found, but none of these differences obstructed collaborative planning of interdisciplinary experiences. The results of this study indicate that collaborative planning of interdisciplinary experiences is not dependent on uniform planning practices among team members.

To derive the descriptions of each teacher's planning, I examined fieldnotes describing observations of the teachers at work, interview notes and transcripts, and documents the teachers produced. Ultimately, I wrote a description of each teacher's planning and gave it to the teachers to read and comment on (see Appendix F). Based on revisions of these descriptions, I developed the following comparisons.

Yearly Planning

Each teacher engaged in yearly planning. The yearly planning of the teachers differed in numerous ways, but these differences did not impede collaborative planning of interdisciplinary experiences. Teachers' flexibility in applying their yearly plans permitted adjusting these plans to include interdisciplinary experiences when teachers judged such experiences to be meaningful.
The teachers' yearly planning served at least two purposes. In part, this fulfilled the request of the principal that they submit a written plan for the year. More importantly, this yearly plan guided the teachers in establishing what Trent referred to as the "flow" of the year. In each case, this yearly plan consisted of a set of topics, issues, or units the teachers intended to teach. For Trent and Jeremy, the order of topics was set to a great extent before the year began, though each departed from this order at various points in the year. As Catherine wrote in response to a description of her planning, her order was flexible: "I can be very flexible in English. I don't have to follow any order particularly. I go a lot on instinct, what would likely work with this particular group of kids at this point in the year etc."

The influences on these yearly plans differed. Jeremy, for example, was strongly influenced by the science department's interpretation of the provincial curriculum guide and the presence of a lab technician, since the science teachers felt they could assist her preparation of laboratory activities by keeping their activities roughly in synchronization. However, Jeremy did not merely acquiesce in the department's order of topics. Based on his experience with middle school students and reading in the field, Jeremy argued that his students would be interested in biological and environmental sciences, but not in physical science, and he adjusted his emphasis accordingly.

Trent's yearly plan was influenced by two major factors: the curriculum guide and his perception of student interests. The curriculum guide was a loose backdrop for him, though he expressed a sense of skepticism about its value:

I don't have a sense of obligation to follow the curriculum guide through. First of all, it is only a guide, and secondly, most of the bulk of it are only a series of suggestions, and thirdly, I think teachers should build their own logical progression into a curriculum given the kids they teach. (Interview, June, 1992)
Nonetheless, Trent was aware of the curriculum, and he invoked it in justifying such aspects of his class as a focus on listening skills. The second major influence on the "flow" of his year was the students. Trent made decisions about topics and foci based on student interests, what he called "teachable moments": "I'm pacing my way through the year based on the high points of interest." A good example of this was his focus on the Anglo-Saxon culture. Though this is not specifically called for by the curriculum guide, Trent spent several weeks on the culture because he perceived high interest among the students (the movie Robin Hood, Prince of Thieves was popular at the time), and he saw it as a concrete way to establish for them the disciplines of social studies.

Catherine based her yearly plan not on some master plan of topics, but on a conception of varying activities (usually forms of reading and writing) for the students. The provincial curriculum guide allows a high degree of flexibility and provides little specific direction, though Catherine refers to it as the source of certain strategies in her teaching. Her knowledge of what her students enjoy and what has worked in the past guided her selection of topics. However, Catherine also enjoyed experimenting with new ideas. Thus, she incorporated reader's and writer's workshops into her teaching based on her reading of Atwell (1987).

In summary, the three teachers all worked from mental maps of the year that helped them establish a "flow" of topics and skills to teach. Jeremy was influenced by a departmental interpretation of the provincial science curriculum. Trent looked for logical connections and especially "teachable moments," or student interest, as a guiding principle. Catherine derived strategies from the provincial curriculum guide, but built her "flow" around varying student activities and included a strong emphasis on interacting with literature.
Yearly Planning and Interdisciplinary Experiences

Two questions arise from this discussion of yearly planning. First, to what extent are these different approaches to yearly planning compatible? Second, how does the collaborative planning of interdisciplinary experiences interact with individual teacher's yearly planning?

Despite the different approaches to and influences on yearly planning, there appeared to be enough compatibility to allow collaborative planning of interdisciplinary experiences. In part, any problems of compatibility at this level were handled by the conception of interdisciplinarity the teachers devised (see Interdisciplinarity Revised: "Integration by Allusion"). By locating their interdisciplinary focus in problem-solving, for example, the teachers were able to maintain an uninterrupted flow of topics, while shifting their emphasis within topics to include aspects of other disciplines. The idea of "integration by allusion" insured that the teachers could, if they chose, continue their yearly plans without alteration (though this is not what occurred).

More importantly, however, the teachers all demonstrated flexibility as yearly planners. Though Trent, for example, gave his students a document outlining the progression of topics, when opportunities arose to enhance learning experiences by departing from that outline, he freely did so. Catherine and Jeremy also altered or disrupted their outline of topics for interdisciplinary experiences.

There were, of course, limits in this. When Catherine raised the possibility of joint work on the theme of alienation (connected to Trent's scheduled work with Chinese philosophy), Trent preferred to wait a month or more so that the logical connections in his "flow" wouldn't be damaged; Catherine readily assented. The findings indicate that different approaches to yearly planning are compatible for collaborative planning of interdisciplinary experiences as long as
teachers remain flexible in their application of yearly plans.

Given that these teachers did plan their courses for the year, how does this level of planning interact with the planning of interdisciplinary experiences? I draw two conclusions based on this interaction: 1) that the absence of planned interdisciplinary experiences in the yearly mental map does not prevent their eventual inclusion, and 2) that teachers unaccustomed to including interdisciplinary experiences in their yearly plan can, when given time, collaborate to do so.

First, the teachers had not scheduled interdisciplinary experiences into the year in their mental maps. There was an assumption early on that they might do something with the Renaissance Unit (see below), since they had experience in this area. They had not (individually or as a team) specified the time of year or the proposed length of the Renaissance Unit, but spoke vaguely of its eventual inclusion in their courses, a vagueness consistent with what researchers have observed in yearly planning (Brown, 1988). Thus, their yearly planning for 1991-92 in effect included no interdisciplinary experiences.

On the other hand, their yearly planning did not exclude such experiences. That is, no teacher rejected a suggestion to integrate curricula because he or she had not planned to do so in scheduling the year. The flexibility of the teachers at this level allowed for planning interdisciplinary experiences as such experiences became meaningful tasks (Hackman & Oldham, 1980) for the teachers.

Second, when the team was provided with released time to plan for 1992-93, they engaged in collaborative yearly planning focused on themes such as the importance of the group, personal excellence, and challenges. They conceived of their coming year in terms of broad themes and how they could connect their courses and the units they wished to teach with other team members' subject
areas. Each teacher agreed to alter the yearly flow of topics to allow for interdisciplinary connections. Thus, for the first time in their team life, they collaborated on yearly plans to include interdisciplinary experiences. What explains this development? In May and June, the team members utilized site-development money provided by the Ministry of Education for released time from their classrooms. They used a good portion of this time to discuss and plan the coming school year and interdisciplinary connections they might make. The key feature here, as other researchers have found for effective middle school teams (Erb & Doda, 1989; Lake, 1988; Merenbloom, 1991), was time: they had time to discuss how they might adapt the order and focus of their courses to enhance their interdisciplinary experiences.

Interestingly, this released time had been available to the team at any point during the year. I raised the question with Trent and Jeremy why they couldn't have held the same discussions earlier, so that they could have benefited from such meetings in their planning for 1991-92. Trent argued that they needed to see what would work before they could hold such discussions, while Jeremy indicated he thought they knew enough and that such discussions would have been profitable earlier. However, such discussions would appear to be unlikely early in a school year, because the teachers were preoccupied with what they termed "getting to know" their students, and they clearly viewed the complexities of taking of released time as an onerous addition to their workloads.

The experience of this team in its collaborative yearly planning argues for the importance of team continuity. As Erb and Doda (1989) and others (e.g., Bell, 1990; Rutherford, 1981; Vars, 1987) report, such teams develop over the course of years. The present study demonstrates the value of continuity in team
membership for the specific applied purpose of planning interdisciplinary experiences for subsequent years. Related to this, the grant from the Ministry of Education was useful to this team because of their continuity, allowing them to plan for a coming school year. The data suggests that middle school teams profit from planning discussions well in advance of the year for which they are planning.

**Term and Weekly Planning**

I have grouped these two aspects (term and weekly planning) of the five levels of planning identified by Yinger (1980) because neither form of planning proved to be important to the teachers in this study. This in itself constitutes an important finding, in that it raises questions about the pervasiveness of Yinger's five levels. In relation to the study of collaborative planning of interdisciplinary experiences, weekly and term planning were unimportant.

Term planning, which Sardo-Brown (1990) affirmed as an aspect of secondary teachers' planning, was not a type of planning these teachers considered to any large extent. As Jeremy wrote in response to a description of his term planning, "It is not that important to me. I would be more interested in finishing a unit before a holiday than before the end of a term," a principle Trent also espoused. Catherine indicated that she liked to "tidy up at the end of term," but the planning of units was far more important in her thinking.

Weekly planning, again identified by Yinger (1980) and confirmed by Brown (1988) at the middle school level, did not figure into the planning of these teachers. None of the three teachers reported planning for the week, and there was no documentary evidence of such planning. The week, as Trent put it, was "fairly meaningless" in terms of planning. Interestingly, the team did meet
weekly, which might suggest a focus on the week as a distinct level of planning. Their team discussions, however, did not isolate the week as a planning unit.

One consideration in understanding this may relate to the eight-by-four cycle of instructional periods (i.e., eight blocks that are repeated three times in four days). With this rotation of teaching blocks, each week is different from the previous one. Thus, planning by block cycles might have more meaning than planning at the weekly level. However, none of the teachers indicated they considered this in their planning either.

Term and weekly planning, then, not having significance in the teachers' individual planning, did not affect their team planning of interdisciplinary experiences. The findings of this study do, however, conflict with those of other researchers in this area who have noted that teachers plan for the term and week.

**Unit Planning**

Unit planning emerged as the most important aspect of the teachers' individual planning and as the level at which most interdisciplinary planning and dialoguing occurred. Each teacher engaged in unit planning, creating at least one new unit during the year. As reported in Brown (1988), unit planning consisted mainly of modifying previous units, rather than creating new ones.

**Conceptions of the Unit**

The teachers each had a sense of units as organizational devices for their teaching, though what constituted a complete unit and how teachers planned such units varied. Jeremy, for example, articulated a comfort with fairly vague notion of a unit:
If you asked me what I want the students to come out of the chemistry part . . . of grade eight . . . I could tell you. You know I could tell you some of the things I expect them to be able to do. And it'd be fairly general. I don't have a lot of specific goals and you know, like if the student doesn't understand all the different types of crystal shapes, you know, that's not something important to me. Yet, I would hope that they would have a feeling for the fact that . . . they can identify that the crystal shape is a property of the substance and so it can be used to help them determine, you know, what this material is. In terms of unit planning, I don't . . . really set out specific things. (Interview, October, 1991)

Trent, too, organized his planning around units, and like Jeremy, did not find vagueness uncomfortable. That is, specifying the exact length or complete range of activities in advance was not important to him. Because of his focus on student interest, Trent did not plan out a unit as a complete entity. He began the Anglo-Saxon unit, for example, without any clear notion of how long the unit might be. What he did include, though, was a way of connecting the units in terms of the flow of his year. In other words, he attempted to make each unit lead logically to the next one.

Catherine, on the other hand, preferred to be more specific in her unit planning, in terms of both the scope and the particular details of a given unit. She alone wrote out unit plans, though only when the unit was new and unfamiliar. For example, her unit plan for the fairy tale unit consisted of three parts: objectives, activities, and a list of the characteristics of fairy tales. Catherine planned all the activities of her units in advance, and she had a fairly clear notion of how long a unit would be.

The teachers reported a variety of influences on their unit planning. All three teachers stressed the importance of materials and student interests and abilities. Jeremy selected content based on how it could contribute to varied instructional activities, particularly "hands-on activities." Activities were also
important to Trent and Catherine. Catherine sought activities that would allow her students to express themselves creatively—illustrating portions of a text, for example. Trent sought activities that would encourage a sense of audience in his students (i.e., he looked for ways each unit allowed the students to communicate what they were learning to others) and that would allow them to engage in role-playing, decision-making, and problem-solving. Trent also considered the "flow" of the year in planning his units. Catherine, unlike her colleagues, specifically reported considering objectives for each unit.

To a certain extent, the differing influences on unit planning were mirrored in the team discussions of interdisciplinary experiences. Catherine, for example, tended to raise issues of materials and resources most often. Trent, on the other hand, focused on decision-making and problem-solving possibilities in interdisciplinary experiences. Jeremy most often struggled with the content he felt obligated to teach.

The Unit and Interdisciplinary Experiences

Did these differences in the sense of what constituted a complete unit create problems in collaboratively planning interdisciplinary experiences? The evidence is that their differences coexisted comfortably, with no expectation that anyone should change his or her approach to unit planning for the benefit of the team. When, for example, at a team meeting in January, Catherine listed her objectives and activities for the fairy tale unit, Trent and Jeremy were supportive and found areas to be involved in the unit, but without any moves to conform to Catherine's unit planning style. Indeed, the dominant process of collaborative planning, the dialogues of the teachers, allowed for autonomy in unit planning.

Perhaps if the teachers had attempted to produce an interdisciplinary unit
plan document (such as the "Living in the Future" unit in Beane, Toepfer, and Alessi, 1986), they might have encountered conflict based on their different conceptions of what constitutes a complete unit. However, such a document was neither necessary nor meaningful to the teachers, and they contentedly allowed one another to function as each saw fit.

The literature review raised a question about the role of established units in planning interdisciplinary experiences (from Brown, 1988). This team regularly built interdisciplinary connections around such established units. For example, Catherine's participation in the word unit involved adapting a previous unit (though not one she had used with this level of student). Trent's interdisciplinary connection to fairy tales was made by altering the focus of his work on feudalism. Jeremy's connection to the problem-solving unit (i.e., parallel questions) came through a unit he had previously done on chemistry and personal care products. Indeed, when the team planned interdisciplinary themes for the 1992-93 school year, one of its chief means of organizing the discussion was to identify units each teacher wanted to teach and then build connections among the subject areas. Clearly, developed unit plans, if not "unit notebooks" (Brown, 1988), formed a crucial source of their interdisciplinary planning.

The importance of established units as sources for interdisciplinary experiences leads to two conclusions. First, because of their preeminence, established units suggest a limitation in the perspectives of the teachers. That is, if interdisciplinary experiences can be aligned with or connected to established units, such experiences stand a good chance of teachers' pursuing them. In contrast, it would seem that such teachers would be unlikely to consider or even conceive of interdisciplinary experiences that demanded completely new units. Second, in the collaborative planning of interdisciplinary experiences, the unit
that generally motivates interdisciplinary connections may be (indeed, is likely to be) the established unit of only one teacher. Thus, though based on someone's established unit, the collaborative aspect of this planning requires that other teachers develop new units or foci. For example, Catherine's fairy tale unit—not new to her—encouraged Trent and Jeremy to explore issues of superstition and magic in their respective classes. In this sense, collaboration assures professional growth by virtue of pushing teachers into new areas and encouraging learning.

*Presenting Units to Students*

The teachers had a number of differences in how they presented their units to their students. Jeremy kept a running account of the development of each unit on the chalkboard for his students. That is, as each lab or activity was completed, Jeremy listed this on the far left portion of the chalkboard. Catherine typically gave her students some kind of unit document. Generally this was an overview that established for the students the requirements of the unit, including some information about evaluation. Trent did not provide the students with any unit document. For one unit, he posted the required work on a bulletin board. For the others, the final projects were displayed as a kind of unit closure.

These differences in how the teachers presented their units to students may have contributed to the team's emphasis on autonomy in unit planning. Sardo-Brown (1990) found that even in districts where teachers were required to use a common model of planning, teachers varied their planning according to contextual factors and their own individual information-processing style. Where no common model exists, as in this case study, those differences can be expected to be at least as great. While there is no evidence that the teachers knew
of the others' approach to presenting units to students, there was clearly no attempt made to adopt a common approach.

In fact, the teachers did not discuss the idea of a common approach to presenting a unit to the students at any of their meetings. It appears that an unspoken assumption of the team members was that each teacher would present units in whatever fashion suited him or her.

Unit Objectives and Interdisciplinary Planning

The role of objectives in unit planning has been a perpetual source of interest to researchers on teacher planning (Clark & Peterson, 1986). The teachers of T8 varied in their consideration of objectives. Both Trent and Jeremy spoke of objectives as vague, but present, notions of what a unit should accomplish, though neither reported considering objectives as a part of unit planning. Unlike Trent and Jeremy, Catherine said she did specifically consider objectives in planning her units, though she did not necessarily write these. Generally, she thought of objectives in fairly general terms, such as wanting the students to do some expository writing while studying *Romeo and Juliet*. At times she became very specific, as in the plan for the fairy tale unit, where Catherine's written plan specified more than a dozen objectives ranging from concrete ("bind the story to create a book") to abstract ("understand or recognize the characteristics of the fairy tale").

As a team, the teachers did not generally discuss objectives in relation to interdisciplinary experiences. Occasionally Catherine would share her objectives for an interdisciplinary experience, but this remained a one-way sharing. When the team planned an interdisciplinary theme to begin the school year in 1992-93, the goal of the unit (improving students' behaviour, especially toward one
another) guided their thinking; they did not discuss any specific objectives to accomplish this general goal. It would seem that objectives were of little importance to the team's unit planning in relation to interdisciplinary experiences, reflecting what researchers have discovered about teachers in general (Clark & Peterson, 1986). Furthermore, this team's lack of concern for unit objectives adds evidence to the argument that despite the widespread training of teachers in objectives-first planning models (Clark & Peterson, 1986; Shavelson & Stern, 1981), practicing teachers do not rely on objectives individually, nor do they revert to their use in collaborative work. Finally, varying emphasis on the importance of objectives did not appear to hinder collaborative planning: objectives were simply not at issue for these teachers.

*Unit Planning Differences and Collaboration*

The differences among the teachers in their unit planning practices did not appear to impede their ability to plan interdisciplinary experiences together. Their collaborative planning of interdisciplinary experiences assumed that each teacher would take responsibility for her or his unit, whether that was part of an interdisciplinary experience or not. Since they did not attempt to create a single, articulated and coordinated interdisciplinary unit, they experienced no conflict based on differing conceptions of unit planning. If what middle school advocates consider an "interdisciplinary thematic unit" (see Erb & Doda, 1989, and Lounsbury, 1987) requires the coherence of a single unit plan, then the teachers of T8 would be likely to encounter difficulties in creating such a document. On the other hand, if creating interdisciplinary experiences is seen as consistent with teachers' autonomy, then T8 functioned quite effectively. Their interdisciplinary unit on problem-solving, for example, allowed each teacher complete autonomy
in the details of the unit, while maintaining a consistent focal point across subject areas. The teachers, because of their communication about their parallel units, made explicit interdisciplinary connections for their students.

The teachers' autonomy in unit planning, however, should not overshadow a more important finding. Unit planning was the basis for the teachers' sharing information, uncertainties, and questions about what they were doing in their classes, and thus the basis of the dialogues that led to interdisciplinary connections. Stein's (1978) finding that autonomy reduced commitment to the team did not apply to T8 at the level of unit planning. Part of the teachers' commitment to the team grew out of the freedom each teacher felt to express his or her current unit work, though that work was autonomous.

An example of this unit sharing occurred at a team meeting in January. Catherine informed her team that she was planning to do a unit based on the novel *The Outsiders* next. The team began to discuss her planned activities, suggesting ways they could support her or get involved in the unit. Eventually Catherine expressed doubts about the fairy tale unit she had scheduled to follow *The Outsiders* because of the attitudes of the students. The team's encouragement led her to change the order of her units, so that the entire team could more conveniently work together on the fairy tale unit she was planning. As they discussed this unit, both Trent and Jeremy worked out ways to involve their subject areas in the unit (though, admittedly, Jeremy's interest lay more in the social aspects of the study than in the academic).

In this example, it was the discussion of units that opened up interdisciplinary connections and suggestions. Catherine rearranged her yearly plan; Trent articulated a connection between feudal England and the symbols of fairy tales; the teachers generated two field trips to involve all three subject areas. In other meetings, the team had similar experiences where the communication
by one teacher about current unit work led to interdisciplinary connections made by other teachers. The experience of this team argues that collaborative planning of interdisciplinary experiences need not be limited to the corporate creation of a single unit; rather, in learning to dialogue about current units, teachers can discover interdisciplinary connections to allow their students to experience.

**Lesson or Daily Planning**

Each teacher engaged in planning at the daily or lesson level (Yinger, 1980). They did not usually, however, write their lesson plans in advance. In this, their practices confirm McCutcheon's (1980, 1981) observation that much of teacher planning is mental. Although all three wrote brief notes about their lessons in a planbook, these were done for purposes other than planning. Jeremy listed major activities of each day after the fact as a record of what he had done. Trent did the same thing, though he did so quite erratically. His planbook had numerous gaps, including one from November 13 to November 29 and another from October 10 to October 25. Since the book was for himself, Trent saw no point in being systematic. I asked to see Catherine's planbook, but she said it was unimportant and something she used in a "perfunctory way."

This is not to say that the teachers did not plan at the daily level, nor is there any implication that they should have written out lesson plans. Clearly, each teacher thought about the daily lessons, preparing to teach by considering a variety of issues.

The daily lessons of each teacher were informed by their conceptions of what makes a good science or English or social studies class. Jeremy sought active, hands-on work for his students, most often lab activities. Catherine sought ways to personalize her work, often through worksheets. For example, her worksheet
on the short story "Penny in the Dust" allowed students to compare their opinions on four issues with what they inferred as the author's opinions. Other worksheets throughout the year continued this pattern: some focusing narrowly on content (e.g., etymologies), but most inviting personal input and connections (e.g., journal assignments for *The Outsiders*). Trent looked for opportunities for his students to identify with other cultures through role-playing, decision-making, and problem-solving.

The daily or lesson planning practices of the teachers did not directly enter into the collaborative planning of interdisciplinary experiences. Certain aspects of the teachers' lesson planning, for example, their common practice of including of student opinions, were reflected in their interdisciplinary experiences. However, at no point did the team consider daily lessons as the level at which to discuss interdisciplinary experiences. The closest they came was the problem-solving unit they developed in April. In this unit, the teachers agreed to follow a common problem-solving procedure, and together they organized questions to explore along similar thematic lines. The English question focused on the importance of the group to students; the social studies question focused on the importance of the group to society; the science question focused on the responsibility of individuals to the world (via health-care products). During this unit, the teachers did discuss particular daily lessons, such as how the students performed the categorizing of information. However, the context of this discussion was always the progression of the entire process.

From the perspective of planning interdisciplinary experiences, daily or lesson planning made little impact. Teachers were free to plan as they chose, and their differences did not create obstacles to the planning of interdisciplinary experiences. The planning of interdisciplinary experiences took the form of
dialogues at the unit level that provided resources for each teacher's daily planning. How the teachers transferred that dialogue into their daily planning did not concern the team as a whole, though they delighted in reports of activities from each other's classes, and occasionally borrowed ideas from one another.

Composition of the Team of Planners

Hackman and Oldham (1980) identify the composition of a work group (i.e., its membership) as an important criteria for determining the group's effectiveness, because this "directly affects the amount of knowledge and skill that can be applied to work on the group task" (p. 174). In relation to the collaborative planning of interdisciplinary experiences, the teachers of T8 appeared to fulfill the four criteria specified for an effective group composition:

1. The team members, as effective instructional planners, had "high levels of task-relevant experience" (p. 174). They all had developed approaches to teacher planning that they found effective.

2. Composed of three members, T8 was "large enough to do the work," but small enough to avoid the process losses associated with larger group sizes (p. 175).

3. Team members had "at least a moderate level of interpersonal skill" (p. 176). This is described more fully below (see "Planning processes").

4. The team achieved a "balance between homogeneity and heterogeneity of membership" (p. 177). That is, the teachers were able to find a common ground in their discussions and planning, but they were different enough to reap the benefits of teaming.

The Hackman and Oldham (1980) model of group effectiveness provides a systematic way of exploring how the different planning practices of the teachers in T8 contributed to a group composition that facilitated collaborative planning. The findings of this study suggest that the concept of balance in homogeneity and
heterogeneity is especially important for effective collaborative planning. Heterogeneity was assured by the teachers' bringing different subject specialist perspectives and different planning perspectives together. At the same time, there was homogeneity in the teachers' willingness to be flexible and tolerant of different planning styles. If one of the team members had been insistent that the others conform to her or his style of planning, that may have created enough imbalance (too much heterogeneity in planning styles) to allow the collaborative planning to succeed.

Of course, balance, in this context, is a somewhat intuitive concept. Achieving the effective balance is not a matter of following a formula. For this team, it seems that heterogeneity was more crucial than homogeneity. It was not, for these teachers, adhering to a common technique of planning (homogeneity) that gave rise to interdisciplinary experiences, but engaging each other's perspectives in dialogue (heterogeneity).

The Hackman and Oldham (1980) model remains somewhat vague on the issue of interpersonal skills. At least in relation to collaborative planning of interdisciplinary experiences, these skills include communicating the unit direction of one's own course, listening to one's team mates and actively offering suggestions, and dialoguing about the content and processes of teaching.

*Findings and Teacher Planning Research*

The comparison of individual teacher's planning practices in relation to collaborative planning of interdisciplinary experiences suggests a number of observations about teacher planning:

1) mental planning may become explicit in the collaborative context;

2) the teamed teachers broadened the context of their work to include
consideration of activities in their team members' classes, though the focus of their planning (e.g., activities, content, materials) did not alter significantly;

3) the psychological support planning offers (McCutcheon, 1980, 1981) may merge with the social support of teaming;

4) Brown's (1988) questioning of teachers as independent planners appears unwarranted--they planned in highly independent manners;

5) objectives assumed no greater significance in the collaborative context than in individual planning;

6) the importance of considering students in planning blurs the distinction between curriculum and instruction.

Evidence for the first observation appeared on several occasions. Catherine, for example, in planning the activities for the word unit, debated whether to have students work in pairs or independently. The decision was hers, but she opened it for discussion to the team, revealing her concerns about motivation and discipline. On another occasion, Trent struggled with the mechanics of a religion and philosophy conference--whether to repeat from class to class or to hold a single team conference. He expressed concerns to the team about the endurance and attention of the students and the possibility of discipline problems. Again, the teaming context allowed what otherwise might be an internal debate (mental planning) to surface. This suggests that team planning is a productive arena in which to study teacher planning.

The second observation involves two related findings. First, for the most part, the focus of teacher planning remained unchanged in the context of collaborative planning. Catherine's concern with materials and resources, for example, did not change in her collaborating with the others. Jeremy continued to place emphasis on hands-on activities in science, whether that was in his own class or in interdisciplinary experiences. Trent's planning continued to include
problem-solving, decision-making, and role-playing as a central feature in both contexts. The one finding that mitigates this has to do with the contextual features of instructional planning (McCutcheon, 1980, 1981; Taylor, 1970). These teachers considered the work their students were doing in their team members' classes as part of the teaching context. Thus, they could allude to and reinforce the learning in other subject areas. Also, they could time the flow of their activities to maximize subject-area connections for their students. Such a broadening of the teaching context to include other subject areas seems to offer the possibility of reducing the insulation (Bernstein, 1977) between subject areas.

The third observation builds on a finding from McCutcheon (1980, 1981) which identified one function of planning as providing psychological support for the teacher. In the teamed context, this support appears to merge with social support as well. The kinds of anxieties that are comforted by planning appear to be relieved as much by group affirmation and support. When Catherine debated aloud whether or not to do her fairy tale unit, her mental planning (concerns) surfaced. Because there was a set of answering words--both Trent and Jeremy urged her to do the unit and promised support--Catherine found not only relief from the psychological uncertainties, but active support from her colleagues. Likewise, Trent's expression of concern about his planned religion and philosophy conference demonstrated psychological uncertainty met by social support.

This study supports a fourth observation about teacher planning. Brown (1988) challenged the view of teachers as highly independent decision makers, arguing that instead of making their own decisions, they were governed by school policies, curriculum guides, texts, and schedules. While these factors were present for the teachers of T8, it is clear that the teachers did make decisions
in their collaboration that required them to interpret, select from, and augment not only those influences, but the suggestions of their colleagues. They each faced a situation that demanded their active independent decision making: subject-specific Provincial curriculum guides were juxtaposed with a Provincial call to integrate curricula (British Columbia, 1990b); for two of them, subject-specific texts offered no curricular integration. They came to this problematic situation as reflective practitioners charged to make decisions based on their professional expertise.

The fifth observation focuses on the role of objectives in planning. The pervasiveness of objectives as the starting point for teacher planning (Clark & Peterson, 1986) suggests that this focal point might provide a sort of lingua franca or lowest common denominator for planning. In the collaboration of T8, this simply was not the case. Whatever training the teachers might have had in this area (and it is not clear what that might have been), objectives were not a common language for their collaboration. As a team, they never identified or articulated a set of objectives for their planning of interdisciplinary experiences. Moreover, the differing emphasis they placed on the role of objectives created no difficulties.

Finally, the sensitivity of each teacher to the interests of her or his students in yearly planning takes on added importance in the context of team planning. As numerous researchers have pointed out, middle school interdisciplinary teams spend most of their time talking about students rather than curriculum (Bullough & Gitlin, 1985; Johnston et al., 1988; Whitford & Kyle, 1984). However, the implied dichotomy may not be as distinct as such findings suggest. When student interests and abilities are a salient feature of planning, discussions about students can be viewed as bearing on curriculum as teachers interpret and adapt
the curriculum to fit the students.

Summary

The individual planning practices of the team of teachers were compared at the five levels of planning identified in the research literature. All three teachers engaged in yearly planning, and different influences and practices among the teachers were discussed. None of these differences impeded interdisciplinary planning, though no teachers independently planned for interdisciplinary experiences at this level.

The teachers in T8 did not engage in term or weekly planning because they did not see these levels of planning as significant. Thus, these levels of planning did not influence the collaborative planning of interdisciplinary experiences.

Unit planning was the most important level of planning for the team members—that is, they devoted most time and energy to this level of planning. When the team members discussed the content of their classes, they focused on the unit level, and productive dialogues resulted. Different approaches to and influences on unit planning were discussed. Again, the teachers' differences in this form of planning coexisted without conflict. The teachers' autonomy was respected in unit planning, and no attempt was made to put forth a unified version of unit planning.

Daily planning practices of the three teachers also differed. The teachers' different approaches to daily planning, however, did not hinder their ability to plan interdisciplinary experiences. Indeed, while this level of planning was important to individuals, it appeared to have little impact on the team planning. Since team planning focused on the unit level, daily plans were left entirely in the hands of individual teachers except when coordination for speakers or field trips was necessary.
The teachers' planning practices were examined in light of the Hackman and Oldham (1980) model of group effectiveness. The differences among teachers were viewed not as impediments to collaborative planning of interdisciplinary experiences, but as elements of an effective balance of homogeneity and heterogeneity in group composition.

Finally, a number of observations about teacher planning were advanced based on the findings of this study.

Teachers' Conceptions of the Purposes of Teaming

To understand the teachers' perspectives on planning interdisciplinary experiences, it is necessary to contextualize this activity within the multiple purposes these teachers acknowledged or experienced in teaming. For them, planning interdisciplinary experiences was only one among many such purposes.

While the presence of interdisciplinary teams has been identified as a distinctive feature of middle schools (Carnegie Council, 1989; George & Stevenson, 1988; NMSA, 1992), there is no consensus on the function of such teams. The teachers in T8 likewise recognized multiple purposes for their work together. In interviews, the teachers identified these purposes: providing social and emotional support, communicating about students, improving student discipline, and creating interdisciplinary experiences for the students. Analysis of team meetings revealed two further functions of teaming: problem solving and discussion of teaching practices. The teachers did not view these functions as competing with one another. Nevertheless, in understanding the collaborative planning of interdisciplinary experiences, it is important to
recognize that this was just one among many purposes. Thus, in using the Hackman and Oldham (1980) model to examine group effectiveness, I am isolating a portion of the multiple purposes the team found meaningful. This section addresses not only the multiplicity of purposes, but also the interaction among them.

Multiple Purposes

Communicating about Students: Meeting Needs

Trent articulated what he saw as the main function of the team quite strongly in an interview: "First of all . . . the main purpose of the team is not for me. It's for the 120 kids that we meet. The main purpose of the team is for their benefit." He and the other team members saw teaming as a way to meet the needs of their students. For example, if a student could function effectively only by having a visual aid to learning, team members assisted each other by providing this information, as Trent did in a January meeting.

Meeting student needs was the essence of middle school philosophy at Waterfront (see p. 101), and the teachers of T8 often referred to this philosophy in their discussions. The purposes of teaming were seen in light of this philosophy. The team's common commitment to middle school philosophy has significance for the Hackman and Oldham (1980) concept of "the composition of a group." Bell (1990) found that commitment to the middle school philosophy was a key element of more productive teams. Clearly, the teachers of T8, who judged even such issues as the cuts on the basketball team in light of middle school philosophy, demonstrated such a commitment.
Reinforcing Discipline

One function of teaming for team members was to assist each other in managing the students' behaviour, or as Jeremy put it, "to come up with strategies for dealing with any problems." A good example of this occurred on January 16, 1992. Following joint work on the word unit in the library, Catherine approached Trent to ask for assistance in dealing with a particular student who was disrupting--as she put it, "sabotaging"--her class. The team met later at Catherine's request, shared information about this student and devised a strategy to deal with his disruptions.

The line between communicating about students (meeting their needs) and managing behaviour was not clearly drawn for the team. Often they assumed a discipline problem to be a manifestation of a learning problem, and they would direct their efforts at the latter. Their approach to discipline was generally proactive; that is, they attempted to head off problems by demonstrating they cared about the students. In this, the team communication was extremely valuable. As Trent put it, "We do look for ways as a team again to stroke the kids who need stroking. Is there anything positive any of us can share about these kids?" My observation of the team meetings revealed numerous examples of such a focus on positive behaviours. Through their communication, they found ways to reinforce the positive in their students. Jeremy pointed out that this positive reinforcement "let's the students see that you're a little more interested in what they're about than just, you know, the subject that you're working with them on." I saw all three teachers compliment students on work they performed in other classes, demonstrating the application of this positive reinforcement made possible through the team's communication.
Social and Emotional Support

Communicating about kids and improving discipline related to a third, more all-encompassing purpose of teaming: social and emotional support. Jeremy, when asked why he had wanted to be on a team, explained that he had not felt much attachment to the staff at Waterfront. The opportunity "to have that structured time to actually talk with some other teachers about students and whatever it involved" appealed to him, and he joined the team. His words demonstrate the pervasiveness of social and emotional support--even talking about students offered a relief from isolation. Trent said the team was "almost like a family." Catherine echoed this feeling: "For me, the emotional support is if one of us is really down . . . the others empathize and support generally. There's never a feeling of, 'Well, what's wrong with you?''"

In this light, the assistance Trent and Jeremy rendered Catherine concerning the student who was "sabotaging" her activities was as much an instance of supporting her as it was dealing with a discipline problem. The purposes of teaming, rather than being clearly distinct categories, merged and overlapped. Whatever issues they dealt with, the teachers combatted isolation through their teaming, a finding consistent with Mills et al. (1992).

Planning Interdisciplinary Experiences

The fourth purpose of teaming the teachers spoke about was planning interdisciplinary experiences. Trent explained it this way:

So there's the housekeeping stuff [i.e., helping students, reinforcing discipline]. But when you start talking about what they're [team members] teaching, the actual flow of the year, that's fun. It helps you know them. It helps you know their enthusiasms as a teacher. It also helps you bring enthusiasm to your team, because you can talk to the kids about what they're doing in English and science. And they're amazed sometimes that you know. (October, 1991)
Jeremy said, "One of my main goals is to be able to do some of the [curricular] integration on the . . . team." While Catherine did not articulate this as a function of teaming, she did assume that the team would be doing interdisciplinary work together.

**Problem-solving**

In addition to the functions of teaming the teachers spoke about, two other functions became manifest in their team meetings. First, the team engaged in problem-solving on a variety of issues. The clearest example of this concerned a problem with SLD (severely learning disabled) students and teacher aides to assist in this.

To mainstream ("integrate") special education students into the regular classrooms, Waterfront attempted to group them in such a way that SLD teachers' time might be best utilized. Thus, all the grade eight SLD students were scheduled into the classes of the teachers in T8. This created a concern on the part of the teachers that with so many special-needs students (they also had ESL and "learning assistance" students in each class), they would not be able to conduct effective classes. Solving this problem--eventually securing more aides for the classroom--became the central issue in several of the team's first meetings. Other problems arose which the team took as team business rather than simply leaving the individual teachers to work out solutions.

**Discussing Teaching Practices**

The final function of teaming that became manifest in team meetings was the discussing and evaluating of teaching practices. Again, no teachers mentioned this in interviews, but numerous examples occurred. Near the end of the first
term, Trent expressed a concern about having too many high marks, especially since some very passive students do well only on paper. Jeremy volunteered information about how he uses students as "watchdogs" to help evaluate other students as listeners and participants, to get around this passivity. He discussed the advantages of having students receive feedback from their peers. Catherine was so impressed with the idea that she decided to try it in her classes, and a week later I observed a student acting as "watchdog" in her class. On many other occasions, I witnessed the teachers discussing pedagogical principles: what works with grouping of students, how to facilitate marking, ways of managing behaviour through proximity, learning from elementary teachers, and so on. The team meeting became a forum for discussing and reflecting upon their profession.

Isolating the Planning of Interdisciplinary Experiences

I indicated that the teachers did not view the purposes of teaming as competing. Indeed, the overlap among varying purposes has been clearly established. Nevertheless, the fact that multiple purposes existed must be considered in light of my focus on planning interdisciplinary experiences. The Hackman and Oldham (1980) model of group effectiveness provides a powerful heuristic for understanding whether or not a group is effective. However, the multiple purposes of teaming in middle schools makes application of the model somewhat complicated. The uncertainty (Lortie, 1975) and multidimensionality (Huberman, 1983) of teaching are not diminished by teaming. A team, therefore, might be extremely successful in some functions of teaming, while ignoring others. The group effectiveness model can be seen as an attempt to extract a single function of teaming for the purposes of analysis, recognizing that the team
might be operating quite differently in other aspects of teaming.

Coding of team meetings according to the manifest team function and the level of collaboration revealed that all purposes (communicating about student needs, improving discipline, social and emotional support, planning interdisciplinary experiences, discussing teaching practices, and problem solving) were addressed in the course of the year. Of the 25 meetings coded in this fashion, the breakdown of meetings that included at least one instance of a given purpose is as follows: communicating about students, 13; improving discipline, 10; social and emotional support, 17; evaluating teaching practices, 6; problem solving, 13; and discussing or creating interdisciplinary experiences, 19. Caution is in order in interpreting these numbers. For example, I have already asserted that some interactions, such as communicating about students, might also function as social support, but I coded according to the most specific category (i.e., if the interactions centred on communicating about students, I coded them as such even though they might also provide social support). Also, numerous instances of creating interdisciplinary experiences consisted either of teachers' sharing about their current content and work or arranging details of a group activity (e.g., a fieldtrip). I justify this coding in that the pattern of planning interdisciplinary experiences usually included dialogue based on one teacher's sharing current unit work. Clearly this is an interpretation that views the purpose of such sharing as a means of making interdisciplinary connections.

The important point in this analysis is to acknowledge that the team saw multiple purposes and therefore multiple tasks in its work together. This study indicates that the teachers saw planning interdisciplinary experiences as one purpose for their team's existence. They did not, however, view this as an isolated purpose or as one of particularly high priority. To them, the multiple
purposes of teaming coexisted and complemented one another. Applying the
group effectiveness model (Hackman & Oldham, 1980) to this situation requires
that one acknowledge the isolating of one purpose (creating interdisciplinary
experiences) as a research artifact rather than a reflection of the teachers'
perspectives.

One question suggested by this analysis is this: could a team profit by
prioritizing the multiple purposes of teaming and focusing its energies on high-
priority purposes? For example, might this team have improved its
effectiveness by making the creation of interdisciplinary experiences its top team
priority? Clearly such a question suggests an avenue for further research,
examining a team where such a priority is established. However, the data in this
study permit some speculation on the question. While the team did not set
priorities in its multiple purposes, in effect, it prioritized purposes by virtue of its
current focus. In this, the team resembled the group model devised by Hoffman
(1982). Hoffman sees groups as simultaneously attending to task functions (the
manifest purpose of the group) and maintenance functions (holding the group
together), though only one set of functions is addressed explicitly. Hoffman
argues that a group can attend to only one function explicitly, while the other is
addressed implicitly, so that, for instance, while a group is solving a particular
problem (task), members are also—though indirectly—building a sense of
commitment (maintenance).

Applying this model to the question of prioritizing team purposes offers a
theoretical fit. Certain of the purposes identified above appear more closely
aligned with maintenance functions (e.g., social and emotional support,
discussing teaching practices), while others appear to be task functions (e.g.,
creating interdisciplinary experiences, reinforcing discipline). Still others appear
to fit into either category at various times (problem solving, communicating about kids). The Hoffman model offers an explanation for how the prioritizing occurs in the team's work. As any function of teaming is brought to the level of explicit attention, other purposes do not completely disappear; rather, they move to the implicit level. In planning interdisciplinary experiences (task), the team provides emotional and social support and communicates about kids (maintenance).

This analysis would, however, suggest that the team could enhance its performance for a given purpose by establishing that purpose as a high-priority matter, particularly in relation to other purposes at the same level (task or maintenance). For example, in T8's early focus on problem solving, the team did not devote significant attention to the purpose of creating interdisciplinary experiences. While the problems the team addressed were pressing and significant in the eyes of the team, still they clearly consumed time that might otherwise have been spent planning interdisciplinary experiences. The presence of multiple purposes for teaming argues for team members' early explicit consideration of what matters they would choose to spend their time on. T8 did not discuss this matter, and it may have enhanced the team's effectiveness to do so.

Summary

The team members acknowledged and lived out different functions for teaming. While these purposes were not mutually exclusive, the team focused on particular functions as it met and worked together. Creating interdisciplinary experiences was one of several functions the team acknowledged. As such, this function of teaming did not assume a position of priority in the team's activities. Rather, this function merged with other functions in the multidimensional nature of teaching. The team did not discuss its priorities in regard to the
multiple purposes of teaming.

Interdisciplinarity—An Evolving Conception

An important question addressed by this case study asked what conception of interdisciplinarity the team developed or adopted in its collaborative work. The data reveal that the team developed a conception of interdisciplinarity that harmonized with the particular contextual constraints they perceived rather than a conception based on social or epistemological issues.

The official position of Waterfront Middle School, as expressed in the principal’s statement of philosophy in Newsletter #2, calls for interdisciplinary experiences:

Curriculum programmes should emphasize the natural relationship among academic disciplines and facilitate cohesive learning experiences for middle school students through integrated themes, topics and units. Interdisciplinary goals should overlap subject area goals and provide for interconnections such as reasoning, logical and critical thought, coping skills, assuming self management, promoting positive personal development and stimulating career awareness. (p. 1)

However, there is no clarification of precisely what might constitute "integrated themes" or "interdisciplinary goals." Thus, the teachers in T8 developed on their own a conception of what constitutes interdisciplinary experiences over the course of the school year. They did not seek outside authorities (in the school, the Ministry of Education, or the field at large) to define the idea for them, though they ultimately found support for their conception from a consultant on curricular integration. Instead, the teachers developed a common conception of interdisciplinarity through their planning and discussions. This conception development was an important aspect of their planning work.
The teachers developed their interdisciplinary work in what might be characterized as three phases, which I have labeled elusion, inclusion and allusion. Initially, their interdisciplinary work (and conception of interdisciplinarity) could be described as elusion: reflecting on and deferring, but not actively seeking, interdisciplinary experiences. They passed from this phase—though without any clear line of demarcation—into an active phase of creating interdisciplinary experiences: inclusion. Finally, the team entered a third phase, allusion, where they reconceptualized integrating curricula as making allusions to one another's subject areas. I make no argument that these phases are logically necessary; they merely represent the development of one team's conception. The crucial observation in this case study is that the team did develop a conception of interdisciplinarity rather than implement a pre-established conception.

It is important to add that near the end of the school year the team began to plan for the next year with time provided by a Ministry of Education grant. At this point, their conception of interdisciplinarity shifted again, taking on a different character. This development is described in the section on long-term planning.

**Elusion: Reflection and Deferral**

**Reflection: The Renaissance Unit**

Team members' reflections on previous experiences in curricular integration became a model for them of the wrong way to integrate. While they saw both positive and negative elements of curricular integration, the emphasis in their reflections was on the latter. Hackman (1990) documents the significance in the life of work groups of "self-fueling spirals" (p. 481), early experiences in a group's
existence which tend to determine the general direction of a group. The impact of previous experience on the T8's work is demonstrated in their reflections.

Their experience with the Renaissance Unit dominated their early reflections on interdisciplinary work. This unit, apparently influenced by a presentation the team saw during a middle school conference in March of 1991, lasted for approximately five weeks in the same year. They required their students to keep a single collection of work for all three classes throughout the unit, and each class emphasized journal writing. They designed the unit so that final projects for each class would be due during the same week, and the entire team would join together for a Renaissance banquet to mark the culmination of their studies. In the end, the teachers cancelled the banquet, exhausted from the work and disappointed by the misbehaviour of their students.

This experience with the Renaissance Unit focused their perspectives on interdisciplinary work², serving as a sort of standard for comparison. When I asked Trent whether they had a picture of an ideal interdisciplinary unit, he said, "Not really. Because we only have one example"--the Renaissance Unit. The features of this unit, as they reflected on it, constitute an assessment of the positive and negative influences of previous experience for the team.

*Previous experiences:* positive impact.

Each of the team members spoke about the advantages of the interdisciplinary (Renaissance) unit for their students. Catherine described the payoff for interdisciplinary work: "I think it's in just the knowledge that you have helped make some connections in students. That they no longer see your subject as just a discrete isolated subject." She saw in the Renaissance Unit that they "broke down a few barriers." Trent spoke of students' making connections between
subjects and transferring this ability to later units of study (e.g., exploration). He also saw curricular integration as a way of showing students their teachers did not merely view them as members of isolated subject classes, but as persons in a broader context: "by demonstrating that we know what's going on, we're demonstrating that we do care what they're doing." For Jeremy, this was perhaps the most important aspect of interdisciplinary work; he liked opportunities "to see what they're [students] doing elsewhere" and to use this knowledge in relating to students.

The teachers recognized some general advantages to making interdisciplinary connections. Trent described the discussions about the substance of team members' teaching as "fun" and a way to know each other better, to bring more enthusiasm to teaching. Catherine described one benefit of interdisciplinary work as the satisfaction teachers experience in their own awareness: "it was very interesting seeing how false the lines are between subject areas. How artificial they are."

In summary, the teachers articulated a number of benefits from making interdisciplinary connections based on their previous experience with creating an interdisciplinary unit. Benefits for students included making personal connections between teachers and students, breaking down barriers between subjects, and transferring skills. Benefits for teachers included team members' coming to know one another better and learning about the similarities between subject areas.

Previous experiences: negative impact.

The Renaissance Unit not only prompted reflections on the advantages for students of interdisciplinary work, but it also provoked thoughts about the costs
and benefits to teachers. The teachers all expressed enthusiasm for the work they did together, but they were emphatic about certain drawbacks. Over the course of the school year, the drawbacks became ever more important. Some of the words Catherine used to describe the teachers at the end of the unit included "exhausted," "out of energy," "really discouraged," "we didn't feel like [rewarding] them," "we just wanted to be done, through with it." Jeremy complained that they "leapt into" the unit without any clear idea of how it fit together or how large a unit it would be. All three teachers mentioned that the unit was simply too long, both for them and for the students. Concerns about a "log jam" of products at the end, difficulties in motivating some students, and restrictions on his "flexibility" became reasons for Trent's decision that he would not repeat the unit.

These reflections on the Renaissance Unit occurred both in individual interviews and group meetings, formal and informal. Moreover, the Renaissance Unit surfaced at various times during the year as evidence for positions on integration. For example, in the team's presentation on teaming to the grade seven teachers (May 5, 1992), Catherine recounted the Renaissance Unit as an example of what not to do, saying "it was moderately disastrous."

The Renaissance Unit became, in Hargreaves's (1989) words, "contrastive rhetoric," which helped establish the expectations of the team for future interdisciplinary activities. Hargreaves describes this concept as follows:

Contrastive rhetoric refers to that interactional strategy whereby the boundaries of normal and acceptable practice are defined by institutionally and/or interactionally dominant individuals or groups through the introduction into discussion of alternative practices and social forms in stylized, trivialized and generally pejorative terms which connote their unacceptability. (p. 44, original emphasis)

In other words, by self-deprecating and humorous descriptions of their work
with the Renaissance Unit, the team members clarified what good interdisciplinary experiences should be like--at least what they should not be like.

Despite an apparent sense of accomplishment for the Renaissance Unit, the dominant impression given by the teachers in their reflections was that the unit was not worth repeating. This gains significance in light of Hackman's (1990) discussion of group spirals. According to Hackman, groups that get off to a good start perform better, while those with negative experiences early on tend to see their problems compounded. The teaching team's initial experience of curriculum integration became for them a model of what not to do, so that the emphasis in their discussions of integrating later on was on smallness and manageability of units so that they could "bail out" (Trent) if things weren't going well.

This finding corroborates Hackman's (1990) concept of group spirals in the context of team teaching and underlines the importance of successful starts for planning interdisciplinary experiences. This team's initial experience with an interdisciplinary unit cast a shadow over their subsequent work together. That the Renaissance Unit was created in part to fulfill Ministry expectations (to acquire site-development money) raises questions about the effects of such funding. If funding practices make excessive demands in terms of project scope, they may be setting up teams for failure. T8, in the end, used its grant money in ways that served its purposes (i.e., for long-term planning), but its experience with the funded project (the Renaissance Unit) reveals the potential negative impact of the funding pattern.

**Deferral**

Teachers willingly reflected on their previous experience, but they were,
except for Trent, less eager to begin integrating the curriculum early in the year. Catherine, for example, told me in early September that they would not begin any interdisciplinary planning for some time. She and Jeremy expressed a need to "get to know" their students before they could think about curricular integration, and though it wasn't clear how long this would take, some two months passed before serious discussion of curricular integration occurred in their team meetings (which did not become regular weekly meetings until the second week of October).

This is not to say that no discussion took place. I would characterize the moves toward curricular integration in the elusion phase as a smorgasbord approach--individuals picking from a varied menu those bits that might appeal to them. For example, during a team discussion in September, Trent responded to Catherine's description of her current activities by saying, "That's neat. I can use that. I can build on that." Catherine was pleased and asked Trent to do so, but neither teacher moved toward working together to integrate curricula. The beginnings of an important pattern emerged here: in subsequent team meetings, curricular integration surfaced when teachers discussed the substance of their teaching (see "Content Smorgasbord and Dialogism"). But throughout the first two months of the year, team meetings focused almost entirely on other issues (such as problems with students, aides, and team leadership), and curricular integration was deferred to a later date.

A Conception of Interdisciplinarity

The teachers initially appeared to operate from three disparate conceptions of interdisciplinarity, although there were common features. Jeremy was the idealist, bound by frustrating realities; Catherine, the realist, holding out for
For Jeremy, his ideal was that all the subjects blend into an indistinguishable experience (Bernstein's [1977] integrated code): "There are times where I'd like students to be able to come into my class and not really be sure whether they're in socials or science or English." The reality he operated under was a strong classification, not only among science and English and social studies, but between vertical levels of his subject area itself. On numerous occasions Jeremy complained that he must avoid certain activities because they impinge on the grade nine curriculum, and he had to be aware of the needs of these students as they go "down the hill" (to the senior secondary school).

Catherine spoke of the "artificial" boundaries between subjects, but expressed sincere concern about threats to the integrity of English—she feared its being "watered down" or "driven" by social studies, a fear commonly expressed among literature teachers (see, for example, Blakeston, 1990, Haigh, 1975, Jones, 1990, and Fisher, 1990). Her vision of integration saw a "natural coalesce[nce]" between literature and social studies, though this appeared to leave out science.

Trent conceived of interdisciplinary work as a seeking for connections between forms of school knowledge and students' lives (as in the significance to what they're doing) and among school subjects. Like Jeremy and Catherine, he saw the interdisciplinary experience as fitting into a pedagogical frame—not too big, timed correctly for energy and seasonal issues. Trent had a vision of interdisciplinarity that seemed less tied to his own subject perspective, and he could develop strategies for integrating from any perspective. He saw each subject area as contributing something of its substance to interdisciplinary work, and he could easily conceptualize what that might be. In speculating on a Remembrance Day unit, for example, he envisaged English as dealing with emotions and science as dealing with weapons as content.
dealing with the "universal theme of war." None of the teachers saw a central role for interdisciplinary work. As Trent said, "Any interdisciplinary stuff is really flashes."

Such disparate conceptions of curricular integration prevented a focused approach to planning interdisciplinary experiences. The team members did not reach consensus on a definition for curricular integration in this phase, and interdisciplinary experiences eluded them.

Given the cyclic nature of school years (Connelly & Clandinin, 1988), one might expect this elusion to be repeated year after year. Each year teachers need to "get to know" their students, establish routines, solve problems. The experience of these teachers--for all the commitment expressed in their meeting together--raises an important question. Do individual priorities make elusion necessary, or can teams decide to begin their school years actively creating interdisciplinary experiences? It seems that the team members' emphasis on establishing the routines and procedures for individual classes ("getting to know the students") exacted a heavy price from the possibilities for creating interdisciplinary experiences.

**Inclusion--"See, We've Integrated"

There is no clear point at which one could say phase two began, but sometime around the beginning of November a change did occur. Over the next several months, the teachers would engage in more discussions of curricular integration at their meetings, and they would venture into joint projects of a limited scope--including other subject areas in specific activities. Their discussions, rather than reflecting on the previous year's experience, focused on current activities. Some of these activities are listed below in Figure 8:
<table>
<thead>
<tr>
<th>Approximate time</th>
<th>Teachers involved</th>
<th>Activity</th>
<th>Level of collaborative planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 4-8</td>
<td>Catherine, Trent</td>
<td>Remembrance Day Ceremony involving student writing</td>
<td>Cooperative; joint work</td>
</tr>
<tr>
<td>November 12-18</td>
<td>Jeremy, Trent</td>
<td>&quot;MacGyver&quot; episode and Merlin's &quot;scientific&quot; miracles, discuss and replicate</td>
<td>Coordinated; sharing</td>
</tr>
<tr>
<td>November 20-22</td>
<td>Jeremy, Trent</td>
<td>Joint viewing of <em>The Vikings</em></td>
<td>Coordinated; sharing</td>
</tr>
<tr>
<td>Nov. 20-Jan. 23</td>
<td>Catherine, Trent</td>
<td>Ongoing planning and work of word unit, begun in January</td>
<td>Cooperative; joint work</td>
</tr>
<tr>
<td>December 12-13</td>
<td>Jeremy, Trent</td>
<td>Joint viewing of <em>Robin Hood</em></td>
<td>Coordinated; sharing</td>
</tr>
<tr>
<td>December 18</td>
<td>Catherine, Jeremy, Trent</td>
<td>Presentation by disabled person; joint preparation involving empathy</td>
<td>Interdisciplinary</td>
</tr>
<tr>
<td>January 29-30</td>
<td>Catherine, Jeremy, Trent</td>
<td>Reading, viewing and discussion of <em>Beauty and the Beast</em> and fairy tales</td>
<td>Cooperative; joint work</td>
</tr>
</tbody>
</table>

Figure 8: Interdisciplinary Experiences in Inclusion Phase

This doesn't include such things as the discussion (of the Montreal massacre of female students) on December 6, 1991, that occurred in both Trent's and Catherine's classes because Trent shared how effective the discussion was in conversation with Catherine during the morning recess. Nor does it adequately demonstrate the extent to which the teachers discussed ideas and formulated plans for such units as the word unit or the fairy tale unit. Nevertheless, a glance at these activities reveals that the teachers were functioning in contrast to the isolation typically experienced by most secondary teachers (Darling-Hammond, 1990; Little, 1990c; Werner, 1991). Even such simple things as joining classes together for viewing a film or reading stories aloud that relate to another teacher's class depart from the powerful collection code (Bernstein, 1977) of secondary schools.
In phase two (inclusion), the team's process for planning integration was not significantly different from the smorgasbord approach in phase one, except that now the teachers acted on their interests, and, significantly, reciprocated. A good illustration of this occurred in a team meeting in November. Trent asked Catherine if she ever worked with rationalizing the value of literature to her students. He explained that he continually returned to the importance of literature in understanding a culture. Catherine responded favourably, indicating that she could do a "mini-lesson" on the topic in her next reader's workshop. Then Trent announced that he was going to do a lexicon of Anglo-Saxon and French words, demonstrating the social influence of the Norman Conquest. This reminded Catherine of some of her previous work in having students create "word projects," and the two teachers agreed to do the project together (which they continued to develop in future meetings). Trent and Catherine turned to me at the end of the discussion and almost in unison said, "See, we've integrated!" Indeed, the resulting unit did witness a good deal of integration of social studies and language arts, including several periods where both teachers worked with combined classes in the library.

*Inclusion: A Conception of Interdisciplinarity*

During the inclusion phase, the team's conception of interdisciplinarity incorporated lessons from their previous experience and, without reducing teachers' autonomy, focused on the content of the various subject areas. Within a limited scope, teachers 1) shared class time with their team members, 2) adjusted the order of units or activities to suit other subject areas, 3) joined classes for specific activities related to the content they were teaching.

It is evident that the "mistakes" of the Renaissance Unit in terms of scope and
expectations were not repeated. Just as Jeremy had predicted earlier, the ventures into integration were "much smaller." These smaller integrated projects provided a good deal of security: "if it doesn't work out, then, you know, it's not the end of the world" (Jeremy).

While the teachers did work together, there was never any threat to the autonomy of teachers or subject areas. For example, in the extensive discussing of options for the word unit (which also involved Jeremy at the planning level), disagreements about focus arose. Trent wanted words that had social significance, whereas Catherine wanted words that could be dramatically illustrated. Trent wanted to examine the "point of entry" of a word into the language, whereas Catherine did not make that a part of her assignment. None of these disagreements pushed the teachers into forging a unified or even consciously balanced approach. Trent and Catherine simply agreed that he could do one thing, she could do another.

Significantly, however, the locus of integration was the content or substance of the work done in each class. During the inclusion phase, the team appeared to use an implicit definition of integration similar to Gehrke's (1991) concept of concrete relational integration (i.e., a unity "based on concurrent appearance in time, in space, or around a given object," p. 114). Teachers were willing to share time (as in reading a fairy tale in social studies or science); teachers were willing to adjust the "flow" of their units (as in Catherine's transposing of the fairy tale unit with a novel unit). Out of discussions of the content and activities in each class, they consciously strove to connect their own work with their team members'. But such connections, apparently, were difficult.
Allusion: From "Snatched Moments" to "Nitty Gritty"

The team’s experience in planning interdisciplinary experiences created a common ground on which to build a team conception of interdisciplinarity. This conception took into account the difficulties team members perceived in bringing together content areas that had been articulated as separate subjects. In developing this conception, the team looked to an outside consultant to validate their version of curriculum integration.

In February, 1992, I attended a one-day workshop on curriculum integration with the team. Sponsored by the school district, this workshop featured a prominent consultant who described ten different versions of curricular integration (Fogarty, 1991). After the consultant had finished her section on a model where various teachers independently focus on learning skills as well as content, Jeremy, obviously excited, spoke to Catherine and me and later Trent about the possibilities this opened. From this point on, the team’s focus shifted from a "fishing for content" (Trent) that might connect their courses to a sharing of learning skills such as problem-solving or decision-making.

The strongest expression of this shift came out in a team meeting in March. During a discussion of curricular integration, Trent challenged the feasibility of the view that teachers can integrate curricula through content:

I know in my gut that interdisciplinary integration can work for brief moments, snatched moments of good luck, and it’s quite easy between our subjects [gestures toward Catherine]. And maybe even art is quite easy, but to integrate something like science which is a core subject is much more difficult. Unless you can make science part of our area, which is ethics. But if you actually want to deal with the nitty gritty of the curriculum and integrate those so that teachers’ lives are easier, there has to be another means than content.

That other means, the teachers decided, was the learning process. By the end of this meeting, the teachers had agreed to formulate questions appropriate to a
problem-solving process Trent had advocated at an earlier meeting and for which he had given them guides. They then began discussing during their meetings the sorts of questions they were using in their classes.

Thus, the teachers' reflections on curricular integration—what it means, how it works—moved them to a more general level of understanding. Rather than what they perceived as the somewhat incidental connections based on content, they set out deliberately to coordinate their subject areas by means of a learning process.

Interestingly, one by-product of their focus on problem-solving instead of content was the emergence of what amounts to a thematic unit. Each teacher agreed to try a problem-solving question in class. Catherine's question concerned the role of groups in the lives of individuals (based on her work with *The Outsiders*). Trent's question concerned the role of groups in the larger society (based on work with the Chinese philosophers). Jeremy's question concerned the effect of individuals and their health care products on the world at large (related to a unit on the environment). The teachers saw this as an example of a unified theme, even though Trent said, "We had not started out articulating any of those connections."

Jeremy and Catherine both viewed this development as a shift in their thinking; Trent did not. Jeremy, for example, found the move to a process focus a great relief. He described the content approach to integration as a significant burden: "we've all got an albatross around the neck." When I pointed out that his metaphor was powerfully negative, he said he had perhaps been too strong. They all liked the idea of integrating content, he said, but it was just too hard since the content connections were not present in the curriculum. Catherine said the new approach to integrating curriculum "was kind of like a light going
on" and "some new doors have been opened." She expressed a weariness with trying to "manufacture" thematic units, given the curriculum and materials they had to work with. All three teachers looked forward to meeting with the same consultant in April, so they could legitimate their new understanding of curricular integration. Trent's question was, "Is this valid? Teachers consciously articulate, consciously teach to a process and articulate that process to the kids, and that's what they're sharing? And that's integration, isn't it?"

The team immediately raised this question in their meeting with the consultant. Couching her comments in a description of the "exhausting" Renaissance Unit and the frustrations of a curriculum and set of materials not designed for integration, Catherine explained the team's new approach to integration as a focus on common processes. The consultant responded by describing the team's new approach as inductive rather than deductive, adding that "it's a much more natural process." As the meeting progressed, teachers from other schools announced their greater understanding of integration as a process- rather than content-oriented issue. The consultant affirmed these articulations with comments like "Yeah, right. Good." The team had their legitimization.

Trent had earlier raised questions to me about this conception of curricular integration. Wasn't articulating learning processes what all good teachers do, regardless of whether or not they wish to "integrate" the curriculum? The effect of the consultant's validation of the team's conception of interdisciplinarity was to silence such doubts. This finding suggests that though a team develops its conception of interdisciplinarity, outside factors can influence that development (see Gehrke, 1991).
Interdisciplinarity Revised: "Integration by Allusion"

This shift in the teachers' conceptions of interdisciplinarity legitimated the boundaries between the various types of content they teach. Instead of looking for connections among content, which had been their way of thinking about curricular integration, they connected processes and created the space to hold onto subject-specific content. As Catherine phrased it, "I certainly don't negate the other content [approach]. It's just that we were thinking much more narrowly and now we're not."

A new notion of what it means to make connections among subject areas accompanied this shift in perspective. Trent explained to the consultant that their "most successful integration" was not the Renaissance Unit, but "alluding" to one another's classroom work. The difficult and complicated aspects of integrating won't work, Trent said. "If it's simple, it will work," and the simple starting point is to ask each other "What are you doing?"

The fieldnotes reveal numerous examples of the teachers' alluding to one another's areas, both before and after the reconceptualization of what interdisciplinarity means. The following sorts of references to other classes occurred: teachers ask their students about discussions held in another class; teachers make references to units of study or activities in another class; teachers build explanations for concepts in their classes on students' experiences in other classes; teachers refer to and utilize student work done in other classes.

Even in the midst of this reconceptualization, the team did not completely abandon its former view of integration. Jeremy, for example, told the consultant how he and Trent had encouraged Catherine to pursue her fairy tale unit by agreeing to "pump it up" in their classes and joining in on the viewing of the film. Catherine added that they had also helped to read the story aloud and discuss it in preparation for the film, and to follow up with discussion after the
viewing. Late in the school year, the teachers planned together a religion and philosophy conference arising from the content work in Trent's class (though the unit was not implemented due to Trent's absence). Clearly they still saw value in this content-based integration. Nevertheless, the difficulties it represented to them dominated their thinking. The teachers, it seems, worked to develop a version of interdisciplinarity that harmonized with the contextual constraints they perceived.

At the team's first meeting after their work with the consultant, each teacher shared what had occurred in class in relation to their work on problem-solving. While their students were doing impressive work with categorizing and analyzing the categorization process, there was little coordination among different classes. Each teacher approached the same process quite independently, though aware of the others' work. Jeremy, for example, spoke of using examples from English and social studies to demonstrate parts of the process to his science students (my observations confirmed this practice). Catherine and Trent reported using the same approach, what they considered an "integration by allusion." As Trent put it, "I like the integration through allusion rather than hitting them on the head with a hammer." At this point, Catherine expected to continue working with the process; Jeremy was unsure of what might come next; and Trent announced, "So I'm done. My problem's solved." Clearly, then, the "integration by allusion" allowed them a great deal of autonomy in making interdisciplinary connections.

The team's move to "integration by allusion," a process-based version of integration similar to Gehrke's (1991) applicative version of integration, guaranteed their subject sovereignty. While they certainly collaborated to a degree uncharacteristic of secondary teachers, this shift reduced the degree of
their joint work (Little, 1990b) from what they had experienced in the inclusion phase. Given the difficulties they perceived--based on the formal curriculum, the materials available, and the lack of time--such a move is not surprising, nor is any judgment of the teachers' competence or commitment implied. They had found a way to weaken the classification (Bernstein, 1977) between teachers, while maintaining that between subjects.

This conception of interdisciplinarity, then, gives rise to two important conclusions. First, in relation to the dominant model of interdisciplinary experiences in middle schools, the "interdisciplinary thematic unit," this team's experience demonstrates that such a model may not deserve its privileged position. The conception of interdisciplinarity devised by T8, rooted in a variety of experiences over a long period of time, valued ongoing, daily connections between subject areas over the showcase interdisciplinary thematic unit or "curriculum way-station" (Capelutti & Brazee, 1992). This suggests that the criticism of middle school teams for neglect of interdisciplinary work may rely too much on researcher-imposed definitions of interdisciplinarity and not enough on the understandings of practicing teachers.

Second, this team's conception of interdisciplinarity offers a modification to Bernstein's (1977) concept of classification. In Bernstein's scheme, classification between subject areas entails an oligarchic power structure among staff members, where department heads relate to each other on a work basis, but other staff members experience only social, non-task-based relationships. The conception of interdisciplinarity devised by T8, in contrast, allowed for task-based relationships centred on subject areas that could remain strongly classified in Bernstein's terms.
Summary

Set in an "ideological context" (Ball, 1981) that advocated interdisciplinary experiences (see Chapter 2, "Interdisciplinarity and the Middle School"), the members of T8 had to work out what "curricular integration" or "interdisciplinary experiences" might mean for them. The array of arguments for integrating curricula was generally not addressed in the team meetings, though institutional reasons for integrating curricula were advocated. Individually, teachers spoke primarily in terms of making knowledge connections for their students and motivating or interesting them. The issue of social inequities did not surface among these teachers.

Initially the team built a conception of interdisciplinarity upon reflections about their own previous experience with a large-scale and exhausting interdisciplinary thematic unit on the Renaissance, a unit which ultimately established a "contrastive rhetoric" (Hargreaves, 1989) for what was wrong with interdisciplinary experiences.

Following a period of elusion, the team entered an active phase (inclusion), where they experimented with a variety of short-term interdisciplinary experiences. The conception of interdisciplinarity they functioned with placed an emphasis on connecting the substance or content of their courses.

Finally, the team reconceptualized interdisciplinarity based on the difficulties they perceived in connecting content. Given their curriculum guides and materials, the teachers found too many obstacles to making connections at this level. Thus, they chose to create interdisciplinary experiences based on learning processes (e.g., problem solving) they could share. Working from this position, they devised and had validated (by a consultant) a notion of "integration by allusion." This conception of interdisciplinarity raises a question about the
position accorded to the "interdisciplinary thematic unit" in middle school rhetoric. Furthermore, the team's experience of collaboration within this conception argues that classification of subject areas does not necessarily undermine task-based, democratic relationships among teachers.

Long-term Planning and a Conception of Interdisciplinary Experiences

In contrast to the "in-flight" decisions to integrate curricula teachers made during the course of the year, the team also engaged in long-term (yearly) planning for interdisciplinary experiences\(^3\) for the 1992-93 school year. The nature of this planning indicated a shift from the conception of "integration by allusion" which the team had developed in their interdisciplinary experiences in 1991-92. In their long-term planning, the team connected their subject areas through themes based on concerns about the students and established units they wanted to preserve. Once again, the unit level of planning proved to be the central consideration of the team in collaborative planning.

Perhaps the clearest pattern to emerge from the team's long-term planning was the interconnection between the various matters of concern to team members. Issues such as communicating about students, enhancing discipline, the role of teaming in the school and creating interdisciplinary experiences proved not to be discrete topics, easily separable. Rather, these issues entered into the dialogues of the team in a dialogic manner; that is, issues raised in one area of concern had impact on the team's consideration of other issues.

Major Issues in the Planning Meetings

Each of the team's special long-term planning meetings, made possible by the site-development money from the Ministry of Education, had its own focal
point. The major issues and action of each meeting are summarized in Figure 9:

<table>
<thead>
<tr>
<th>Meeting Date</th>
<th>Major Issues</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 9, 1992</td>
<td>Frustration with lack of administrative support; problems with timetable; teaming in 1992-93.</td>
<td>Decided to become champions of teaming in the school.</td>
</tr>
<tr>
<td>May 25, 1992</td>
<td>Joint field trip; student putdowns; potential themes for next year.</td>
<td>Devised a list of 12 interdisciplinary themes and selected four to develop.</td>
</tr>
<tr>
<td>June 4, 1992</td>
<td>Student behaviour on the field trip; discipline policy; parental involvement.</td>
<td>Decided to meet with parents early next year to reinforce team policy.</td>
</tr>
<tr>
<td>June 11, 1992</td>
<td>Positive reinforcement; alternative assessment practices; interdisciplinary themes.</td>
<td>Devised a team policy on late and missing work; possible creation of team portfolios; added another theme to list.</td>
</tr>
</tbody>
</table>

Figure 9: Major Issues in Long-term Planning

This summary of topics cannot adequately portray the interplay between them. For example, the discussion of student behaviour on May 25, which arose from a concern expressed by another teacher at the morning staff meeting that day, gave a focus to later discussions of interdisciplinary themes for the next school year. The teachers felt a sense of having failed their students by not eliminating student put-downs, particularly racist remarks. The interdisciplinary theme they decided to begin the next school year with centred on the importance of the group and issues of alienation from the group. Each teacher outlined an approach to the theme that would incorporate the content of her or his course while also addressing the practical and immediate concerns about student interaction. Later meetings built on this. They decided, for
example, to incorporate positive reinforcement of behaviour with the theme of the importance of the group.

This finding demonstrates the interconnections among the multiple purposes of teaming and underlines the relationship (rather than the dichotomy) between team discussions of students and of curriculum. As opposed to the academic and institutional considerations in their short-term planning of interdisciplinary experiences, social issues entered their discussion.

**Interdisciplinarity in Long-term Planning**

The conception of interdisciplinarity implicit in the team's long-term planning differed from its short-term work. Theme-based integration replaced process-based integration. This is evident in the focus of the team discussions, the resulting plans (though these were not written), and interviews with the team members.

As indicated above ("Interdisciplinarity Revised: 'Integration by Allusion'"), the team had found great relief in reconceptualizing curricular integration (interdisciplinary experiences) as sharing common processes rather than attempting to connect content. However, when they met to plan for the following school year, they did not discuss integration through processes. Rather, their focus was entirely on themes they could use to connect their various subject areas. They spoke of materials and activities they might use in these themes, not more generic processes, such as problem-solving or decision-making. This change in focus appears puzzling and requires explanation.

Interviews revealed that the team members did not consciously decide to discuss content and themes as opposed to processes. In fact, they did not discuss how they would structure their meeting time, so the emerging patterns were just
that: emerging. Catherine agreed that it was a surprising shift:

Maybe the fact that . . . we felt more free about coming at an integrated
topic through a process instead of the content and then we found out
that once we got into the process that we had the content there too . . .
that we could connect. . . made us think of, you know, it is possible to
and maybe desirable sometimes to, to work together through themes.
(Interview, June, 1992)

Trent also agreed there was an unarticulated shift in their conception of
interdisciplinarity. He attributed this to the fact that it is easier to talk in terms of
themes than learning processes if one wants to establish the relevance for the
students. He anticipated a further step, perhaps early in the next school year, of
deciding which themes lent themselves to important learning processes, such as
decision making and problem solving. When I asked Jeremy about this shift in
perspective, he expressed some discomfort about it, but could offer no
explanation for how it came about.

"Integration by allusion" was clearly still a part of the teachers' conception of
interdisciplinarity. Knowing what the others would be doing was essential, and
the teachers took the opportunity to outline roughly what focus they would take
for various themes. For example, the first theme, focusing on the importance of
the group, involved the following sorts of activities: in English, the students
would read short stories and poems dealing with the group and do an extended
study of The Outsiders, a novel that examines group loyalty; in social studies,
the students would explore a particular group of people (the medieval village) to
determine why groups existed and what they offered group members; in science,
students would examine lab safety and environmental issues as they bear on
responsibility to the group, and they would begin a study (probably chemistry)
that required effective small group work. These ideas were altered and adapted
as the team continued to speculate on the unit. The teachers did not make any attempt to get a unified "interdisciplinary thematic unit," where various responsibilities and roles were decided on by the team as a whole or where joint teaching of large groups occurred. Rather, the conception of interdisciplinarity undergirding their work allowed each teacher complete autonomy in determining his or her class activities. Their collaborative planning consisted of agreeing on the focus for a unit and communicating the content and activities they envisaged using. From this, a dialogue arose which altered and enhanced each teacher's ideas.

A second finding regarding their long-term planning concerns the role of established units. After the teachers articulated their first theme (the importance of the group) based on concerns about student interactions, they listed further themes that would allow them to connect already established units in their courses. For example, the theme of "myth and magic" allowed Catherine to use her fairy tale unit and Trent to use a unit on Arthurian legend. Jeremy did not have an established unit for this topic, and he later confessed to feeling uncertain about the theme, though he said he could work with "debunking" magic from a scientific perspective.

Jeremy's discomfort with the theme of "myth and magic" paralleled reservations expressed by Catherine (regarding the "disasters" theme) and Trent (regarding the "courage and challenges" theme). It seems that they were confident of their first theme, because it arose from a perceived need among their students. However, the themes derived from established units in particular subject areas had less hold on the teachers. Thus, established units appear to constitute a relatively weak basis for creating interdisciplinary themes.

These data suggest several important conclusions. First, given time, teachers from different subject areas can collaborate to plan interdisciplinary experiences
at the yearly level. T8’s experience and the team members’ comments in interviews suggest that such yearly planning would be most profitable well before the beginning of a school year. That is, early pressures and concerns would make such yearly planning unlikely at the beginning of a school year. Second, established units form an important source for team members in this yearly planning. However, the teachers’ uncertainties about and level of commitment to interdisciplinary experiences based primarily on established units from various teachers’ courses indicate that this source is relatively weak for team members compared to concerns about their students’ interactions. Third, the team’s experience with students, particularly their concerns about student interactions, provided a more persuasive source for interdisciplinary experiences. The one area about which the team reached complete agreement in their long-term planning was the need to provide interdisciplinary experiences for the students to reinforce the importance of the group. Fourth, the team’s perceptions of interconnections between questions of curriculum and questions of student-related issues underlines once again the importance of viewing the collaborative planning of interdisciplinary experiences from the perspective of team members rather than that of outside definitions. The concern that teams do not address curriculum in their meetings (Beane, 1990; Bullough & Gitlin, 1985; Johnston et al., 1988; Whitford & Kyle, 1984) must be re-evaluated in this light. Discussions about students may, in fact, be of central importance to creating interdisciplinary experiences.

Summary

The team, having developed a process-oriented conception of interdisciplinary experiences, shifted to a theme-based orientation (involving
content) when it engaged in long-term planning for the next school year. This shift was not discussed among the teachers, and the planning meetings did not address the shift directly. In their long-term planning, the teachers returned to content as the locus of integration, despite their disavowal of content-based integration earlier in the year. This suggests that content remains a significant consideration in planning interdisciplinary experiences, especially from the long-term perspective, confirming in the teaming context Zahorik's (1975) findings on the importance of content to teacher planning.

The findings regarding long-term planning suggested that 1) teams can engage in yearly planning for interdisciplinary experiences if they are given time to do so; 2) established units from individual teachers form a key, if somewhat weak, source for such planning; 3) team experience with students provides a starting point for planning interdisciplinary experiences; and 4) criticisms of teams for not discussing curricula may ignore the realities constructed by team members.

Deciding to Integrate Curricula: The Interdisciplinary Judgment Matrix

This case study raised the question of why teachers decide to integrate curricula, or what team members recognize as opportunities for integrating their subject areas. The data indicate that the teachers in this study decided to plan interdisciplinary experiences when opportunities to do so appeared meaningful to them. Two primary considerations appeared to influence these teachers' judgments about whether or not opportunities to create interdisciplinary experiences were meaningful: relevance of subject content and subject intent. These concepts form the basis of a model for the decision-making process, the
Interdisciplinary Judgment Matrix.

Content vs. Intent in the Interdisciplinary Judgment Matrix

Curricular content (from Latin continere, meaning "to hold together") refers to what the curriculum "holds," both in substantive issues and skills or processes. For example, the grade eight social studies curriculum (Ministry of Education, 1988) designates both understandings (of issues or topics) and skills (such as map reading) that teachers are responsible to teach. That is, the curriculum "holds" both content and skills. While it is tempting to create a separation of content and skills for purposes of analysis, I found that this was not true to what the teachers actually did. Content and skills are both clearly designated for the teachers; together these comprise what I refer to as curricular content.

Subject intent (from Latin intendere, "to stretch towards") is a concept that is much less fixed than content. Building on the etymology of the word, intent refers to ways subject specialists attempt to "stretch" their students. Teachers find value in certain activities based on their (subject-related) assumptions about teaching children, regardless of the official position of the curriculum guide. Jeremy, for example, acknowledged the inclination to experiment and look for evidence as an important intent for his students. The "MacGyver" unit (see below) gained value for this reason, even though the film was scientifically inaccurate and the experiments he conducted based on it were not a part of the designated curriculum.

Support for the concept of subject intent comes from the literature as well as the data in this study. For example, Ball and Lacey (1980), in their study of high school subject departments, distinguish between subject paradigm and subject
pedagogy, ideas that relate to the distinction I am making. In their analysis, "subject paradigm refers to the views of English as a subject held by English teachers in terms of the appropriate content" (p. 157), while "subject pedagogy refers to the system of ideas and procedures for the organisation of learning in the classroom under specific institutional conditions, that is appropriate method rather than appropriate content" (p. 158). They distinguish, then, between content and method, much as Bernstein (1977) distinguishes between classification (content) and framing (method). The difference between Ball and Lacey's analysis and the dual concepts of content and intent is that I tie the term content to the written curriculum guide, and it includes skills and processes as well as substantive information. The term intent places the focus on students rather than on pedagogical practices, though clearly there is an overlap (e.g., the disposition to experiment demands attention to experimentation as a method).

The presence of subject-related assumptions about teaching has been noted by various researchers. Hargreaves (1986) found subject specialists to have been "inducted" into "a subject culture or community--into a set of shared assumptions about how children learn, how they are best taught, how one should relate to them, and so on" (p. 221). Ball and McDiarmid (1990) describe the multiple influences that contribute to subject-specialist identity: experiences as precollege students, university training, effects of their own teaching, and experiences outside of school. From a variety of sources, teachers develop views about what constitutes a good class in their subject areas (Ball & McDiarmid, 1990; Doyle, 1992; Feiman-Nemser & Floden, 1986). These notions of what makes appropriate learning experiences, based not on the written curriculum guide, but on a host of experiences, constitute subject intent.

The interplay of subject content and intent provided a basis for teachers to decide to commit to creating interdisciplinary experiences. This interplay is
graphically depicted in the Interdisciplinary Judgment Matrix (Figure 10).

![Interdisciplinary Judgment Matrix](image)

**Figure 10: The Interdisciplinary Judgment Matrix**

In this matrix, the darker the shading, the more likely a teacher will expend effort to plan interdisciplinary experiences. The lines drawn between high and low in the Interdisciplinary Judgment Matrix indicate that at some point teachers must decide whether an event has enough relevance to pursue the planning of interdisciplinary experiences. The shading of the diagram indicates the continuum quality of this decision: determining the relevance of an event is not a binary decision; the dialogue of team members influences their decisions.

Presented with opportunities to make interdisciplinary connections, the teachers made judgments about whether and how much to commit to such experiences based on the consideration of relevance to subject content and intent. Trent’s comments illustrate this:

I guess the driving mechanism of everything I select is relevance. And the relevance can either be in the content or it can be in the process. And if one of the processes or the skills, if one of the skills I want, for
instance, is for them to work together and to compromise and cooperate, I'll choose something that doesn't seem to have much relevance in terms of their lives, like attacking a castle, simply because it's a game, an enjoyable game. And they've experienced this with Nintendo and computers, but it gives them an excuse to work together with something that's enjoyable. (Interview, June, 1992)

Though Trent contrasts skills (process) and content, I maintain that his concern with relevance is based on content and intent--his assumptions about how he wants to stretch his students.

As Figure 10 indicates, when both content and intent are of high relevance, teachers are likely to commit to creating interdisciplinary experiences. As either content or intent relevance diminishes, the likelihood of creating interdisciplinary experiences likewise diminishes. According to Hackman and Oldham's (1980) model of group effectiveness, a key factor in determining "level of effort" of a group is the design of the task--specifically whether or not a task is seen as meaningful by group members. The Interdisciplinary Judgment Matrix illuminates this determination of a task's being meaningful.

This implicit judgment matrix forms the core of a model for predicting a teacher's commitment or effort in creating interdisciplinary experiences. As team members talk to one another, they encounter opportunities to design interdisciplinary experiences. These opportunities can be seen as propitious events. Clearly the prerequisite for an event's being propitious is the willingness of the team to integrate curricula, and nearly any event might be seen as propitious by team members inclined to integrate. A propitious event might consist of a seasonal occasion (Thanksgiving or Remembrance Day), a current event (the Gulf War), a resource (a television program), or a suggestion on the part of one of the teachers ("I could do a little word project at the same time"). A key feature, however, is that this propitious event must be addressed
by the team or some team members. Individual teachers judge the value of the event according to the criteria of content and intent relevance. If the propitious event is perceived to be of high enough relevance, this leads to a corresponding commitment to the interdisciplinary experience. Commitment to interdisciplinary experiences might range from a one-time presentation (joint or independent) to a complete unit of instruction involving multiple class periods.

Certainly other factors influence this process: for example, the timing of current units or the "flow" of the year, the need for variety, pressures from school administrators and so on. Because of the multiple factors involved, the model cannot by itself predict teachers' commitment to interdisciplinary experiences. It does, however, provide a framework for understanding teachers' decision-making about integrating curricula.

_Evidence for the Model--"MacGyver"

In November, Jeremy received some information and materials about a television program, a "MacGyver" episode where a modern character (MacGyver) travels back in time to the age of King Arthur. The scientific aspect of this program centred on some apparently "magic" tricks MacGyver performs, all of which have scientific explanations. As a science teacher, Jeremy viewed the curricular content as having low relevance—that is, none of the science (content or processes) depicted specifically addressed the curriculum Jeremy was teaching his students. Thus, he devised classroom activities based on the program that he would not normally do with grade eight students. However, Jeremy saw the television episode as a way of bringing in lots of "science," even if the science featured in it was inaccurate. While another science teacher in the school was "turned off" by these inaccuracies, Jeremy decided it was a useful way
to show the students some science in action. Thus, his position on the Interdisciplinary Judgment Matrix for this event was in the upper right corner. That is, it had relatively low relevance for curricular content, but higher relevance for subject intent. (See Figure 11).

**Figure 11: Interdisciplinary Judgment Matrix for "MacGyver"**

I place Trent's position on the Interdisciplinary Judgment Matrix at the opposite corner from Jeremy's (Figure 11). For Trent, the "MacGyver" episode had moderately high relevance for curricular content, but low relevance for subject intent. The topic of the program fit closely with his recent content work. His students had just finished with the Anglo-Saxon unit, and Arthurian legend is associated with that group and time. Trent's approach to the "MacGyver" episode involved the students' critiquing the film, based on comparisons with student-made "museum displays" posted throughout the classroom, which detailed the culture portrayed in the film. This critiquing, however, repeated an
activity Trent had used earlier in the year (his students had previously critiqued a portion of *Ex Caliber*), diminishing the value of what Trent considered to be an important way of thinking (intent) for his students. "For me, it was a lot of old territory," Trent said.

Utilizing the above model, one would expect both teachers to expend moderate efforts to create interdisciplinary experiences. That is, they would be likely to do some activities, but would not devote much class time to these activities or incorporate them into the evaluation of their students. This appeared to be the case. Trent and Jeremy brought their classes together to view the program, with some introductory comments from Trent. In a class later that week, Jeremy conducted one experiment and one demonstration from the show with his science classes, and they engaged in some discussion of the science that appeared to be "wizardry." At the time of these activities, he said he was planning to do more experimenting (making batteries from citrus fruits), though I did not witness this. His students were not evaluated on any of these activities. Trent had his students put the tricks done in the episode in order of occurrence, a sequencing activity he considered a social studies skill. His enthusiasm, however, was directed first at the examination of the content (critiquing its accuracy) and then at "setting up" the real exploration to be done in Jeremy's class. "I was basically letting the science take over," he said.

One aspect of interdisciplinary experiences for middle school teachers in general and certainly for this team is a recognition of the social benefits of bringing together larger groupings of students. Both Jeremy and Trent commented on the value of having the students function in groups of 56 (they combined their 112 students in two groupings); they also agreed it was a positive way to reinforce each other in matters of discipline. Finally, they saw the film as
an effective way to let the kids know they were doing well in school: As Trent put it, "It is like a reward . . . . It was relaxing for them."

Other Examples

Remembrance Day

This same analysis can be applied to other "propitious events" in the team life of these teachers. A joint social studies and English project based on Remembrance Day resulted when Trent asked Catherine to help with a school assembly to honour Remembrance Day. They both saw high enough relevance for subject specialist's intent to make the project meaningful for their classes. This propitious event gave Catherine an opportunity to have her students write personal responses to an important historical commemoration. Neither the topic nor the form of the writing were a part of the curricular content designated in the curriculum guide. However, the expression of emotion in writing was a disposition Catherine encouraged in her students (as evidenced by the frequency of this activity in her classes).

The curricular content of Remembrance Day activities had low relevance for Trent as well, since his students were not studying World War I. However, he had his grade nine students role play characters from war photographs, by asking them "What are you thinking of at this moment?" He was, as he put it, "talking about the context of war," and setting contexts, identifying with other people and cultures, was an important aspect of his conception of social studies. This event provided an opportunity for his students to identify with other cultures. Trent's and Catherine's joint work on the Remembrance Day Ceremony resulted from seeing the integration of their areas as meaningful—in both cases, high relevance to subject intent.
The Word Unit

At a team meeting in November, 1991, Trent spoke of the doubling of Anglo-Saxon and French words for everyday and official purposes in medieval England. He indicated he planned to do a lexicon unit with his grade eight students, to explore the social significance of the doubling phenomenon. Catherine recalled having done word projects two years earlier in which her grade nine students had explored multiple meanings and etymologies of words. As Trent described his lexicon unit, Catherine said, "I could do a little word project at the same time."

From this dialogue centred on Trent's report of his current activities, the two teachers developed a word unit that involved more than two weeks in Catherine's class, several days in Trent's class, and joint time in the library.

The propitious event was Trent's sharing about his current work and the resulting dialogue. The event held high relevance for Catherine's subject intent, though relatively low content relevance. Catherine indicated that the curriculum guide did not direct her to do this sort of project. What attracted her to it, then? She said the word project allowed her to get her students to do some creative work, to spend productive time in the library and to learn about the "incredible nuances of words," clearly desirable ends from her professional (specialist's) perspective.

The word project held more curricular content relevance for Trent since the doubling of words was current in his teaching. It had less subject intent relevance for him than for Catherine. Trent envisaged an inquiry around the interplay of language and culture: "We could say language is a development of our history, culture." The teachers saw different foci for the unit: Trent wanted to focus on words having social significance, and Catherine preferred words with potential for creative expression. When all three team members brainstormed
words for the project (Jeremy participated at this level), Trent would "load" the list with words suited to his purposes, but he allowed Catherine's preference for "creative" expression to be the determining factor in the unit.

Jeremy did add words to the list, but he did not seek any greater involvement in the project. When I asked him about his reluctance to participate, he jokingly responded that he had never been very good at English. He said he liked being aware of the work of the other teachers, and he talked to the students about the project, but he did not feel as though he should involve his science classes in it. Interestingly, a series of video presentations he was using at the same time as the word unit used word etymologies (of, for example, molecule, volume, and density) as a teaching device. Jeremy, however, did not mention this to me or the students. The word unit had low relevance both to his curricular content and subject intent. Thus, it lacked meaning and he chose not to commit any class time to the interdisciplinary experience.

The Vikings

Not every instance of creating interdisciplinary experiences conformed neatly to the above model. Trent's and Jeremy's joining together to view the film, The Vikings, is an example of a discrepant case (Erickson, 1986). When Trent suggested their classes jointly view the film Jeremy agreed, and they did so. This joint activity had low relevance for both curricular content and subject intent from Jeremy's perspective, though it had high curricular content relevance for Trent, who was teaching about Vikings at the time. According to the model, Jeremy would be unlikely to expend any effort for such an interdisciplinary experience. (See Figure 12.)
Jeremy: Low intent and low content relevance predict no commitment to interdisciplinary activities.

Trent: High content and low intent relevance indicate moderate commitment.

Figure 12: Interdisciplinary Judgment Matrix for The Vikings

Given this low relevance, why would Jeremy give up science class time to view the film? First, Jeremy's participation, true to the model, was at a low level of commitment. He gave up science class time for viewing the film, but he conducted no further activities connected with the viewing. Second, Jeremy explained that joining with Trent for The Vikings was a case of returning a favour, since the "MacGyver" experience was primarily for his purposes. This suggests that creating interdisciplinary experiences may entail an element of interpersonal dynamics apart from educational reasons. Finally, Jeremy saw value in the experience at a social level, beyond creating interdisciplinary connections. Such activities, by bringing together the students of the team, help create a team identity. As he put it early in the school year, the students "don't see it as a team. And partly that's because they travel together as a group of thirty. . . . I think that there's a possible bonding there that, that doesn't happen."

The case of The Vikings demonstrates that the model proposed above is not
mechanistically predictive. Other factors intervene. Relations between team members, creating a team identity, and a variety of factors not evident in this particular instance also influence the teachers in making judgments about creating interdisciplinary experiences. Nevertheless, the model provides a conceptual framework for exploring how teachers gauge the potential value of interdisciplinary activities.

Erb and Doda (1989) conceptualize four stages of interdisciplinary work (preintegration, coordinated teaching, cooperative teaching, and the interdisciplinary thematic unit). Jeremy's participation in the viewing of *The Vikings* was at the lowest of these stages, preintegration. Viewed in this light, the Interdisciplinary Judgment Matrix helps to explain why the interdisciplinary work did not progress beyond this preliminary stage, though by itself it cannot explain why Jeremy committed to the activity in the first place.

**Significance of the Model**

The Interdisciplinary Judgment Matrix provides a way of investigating why teachers decide to create interdisciplinary experiences. Far from being arbitrary or unwarranted decisions, moves to create interdisciplinary experiences are seen in this model as matters of professional judgment involving a balancing of curricular demands and subject-specific assumptions about learners. The questions Brown (1988) raises about teachers as complex thinkers, whether they form plans based on their own goals or merely fit into school curriculum guides, subside in the face of such professional judgments about content and intent.

**Summary**

In deciding whether to commit effort to creating interdisciplinary experiences,
the teachers in T8 gauged the relevance to curricular content and subject specialist's intent of potential interdisciplinary experiences. The Hackman and Oldham (1980) model of group effectiveness posits that degree of effort in a group task is largely determined by how meaningful the task is to group members. The Interdisciplinary Judgment Matrix was proposed as a way of explaining how the team members determined whether an opportunity to integrate their curricular areas was meaningful to them. I presented counterevidence, demonstrating that while the Interdisciplinary Judgment Matrix provides professionally relevant explanations for the joint planning of interdisciplinary experiences, it does not by itself fully explain why teachers work together to create such experiences. I argued, however, that the Interdisciplinary Judgment Matrix demonstrates the exercise of professional judgment among different subject specialists in creating interdisciplinary experiences.

Planning Processes of the Team

An important preliminary question for this case study concerned planning processes the team might use. What processes did the team implement or develop in its collaborative planning? This section examines this question.

Jeremy, Trent, and Catherine did not follow a particular model or system of planning interdisciplinary experiences. Although they reported learning such a process at a school-sponsored middle school conference on March 15, 1991 (according to the published conference schedule, the session was titled "Development of Interdisciplinary Units," and was conducted by a well-known middle school consultant), they did not find this process useful. The team also did not seek planning models, and if team members had any awareness of other
existing models (see pp. 61-62), they did not indicate this either in interview situations or in their team activities.

Instead, their planning process emerged in the course of their work. To understand the team's planning process, I compared data from two sources. First, data from interviews were examined to locate any explicit comments the teachers made about planning processes. Second, fieldnotes from team meetings were examined for explicit and implicit process interactions.

The data support a number of observations relating to the planning processes of the team, especially as it planned interdisciplinary experiences:

1) In contrast to recommendations from middle school literature, T8 did not follow an agenda in its meetings, allowing the structure of meetings to emerge from a variety of influences. The lack of an agenda entailed several consequences.

2) The decision-making of the team proceeded in a consensus model, where potential interdisciplinary experiences were subject to the expression of interest and commitment on the part of team members.

3) The primary vehicle for planning interdisciplinary experiences consisted of dialogues about the content of the various subject areas.

Agenda and Structure

Middle school researchers argue that interdisciplinary teams conduct meetings more effectively when following a fixed agenda (Bell, 1990; Erb & Doda, 1989; Merenbloom, 1991; Whitford & Kyle, 1984). Indeed, in Bell's (1990) study, more productive teams operated from a typed agenda the leader distributed in advance of the meetings (p. 168). What role did the use of an agenda play in T8?

The teachers in T8 never used an agenda. At only one meeting, Catherine, the team leader, appeared to be using an informal agenda, but when I asked her
about this later, she indicated she had merely written down a few names of students she didn't want to forget to discuss (arguably a form of an agenda). This ignored one of the official duties the principal had assigned team leaders at Waterfront: "Plan interdisciplinary team agenda, provide agenda to members in advance of meeting . . ." (Waterfront Middle School Job Descriptions for Interdisciplinary Team Leaders). However, the team had agreed early in the year that such a task was futile for their team of three. As Trent declared in a team meeting addressing the leadership issue, preparing an agenda was a waste of time: "It's assinine. We'll work it up afterward."

The absence of an agenda entailed several consequences for T8's meetings. First, the structure of meetings was emergent, reflecting current concerns of the team. Second, discussions ranged freely over a variety of topics, often including the content the teachers were currently teaching. Third, the absence of an agenda may have allowed some suggestions and ideas for interdisciplinary experiences to vanish without adequate discussion.

Without an agenda, the structure of the meetings emerged from concerns of the teachers, outside influences (most often the guidance counselor), and events at the time. A typical pattern of the team meetings was to begin with issues relating to social/emotional support within the group (six of 25 meetings began this way) or communicating about kids (seven of 25). Often a particular problem, such as how the teaching aides were interacting with students, occupied a large portion of the meeting. In this, the concerns expressed had the power to determine the direction of a meeting. Thus, the discussion and planning of interdisciplinary experiences depended upon team members' keeping this issue present in team discussions. For example, in a January meeting, discussion of the behaviour of students progressed to a focus on interdisciplinary experiences
when Catherine asked Trent whether he would be doing a Renaissance Unit this year. In most meetings, someone did open discussion about interdisciplinary experiences either through sharing about current unit work or asking others about their work.

A potential drawback due to the emergent structure of meetings, the lack of an agenda, was the focus on whatever concern was first expressed, and some meetings did remain focused on the initial topic, particularly if it was related to a current problem. The starting point of a meeting, however, did not necessarily determine the direction of the entire meeting. A good example of this occurred on January 16, 1992. Catherine called for a special meeting because she wanted to address discipline problems she was having with a particular student. The teachers discussed possible solutions to this problem in the resulting meeting (two of 17 pages of transcript), but the majority of their time (15 of 17 pages of transcript) was spent discussing interdisciplinary activities and upcoming units. This demonstrates not only the flexibility of the team's structure--through the effortless shift from discipline problems to interdisciplinarity--but also the pervasiveness of interdisciplinary discussions.

Most meetings saw the teachers address a variety of issues. The process for shifting topics was informally controlled by the team members rather than by a pre-established agenda or only by the team leader. On January 16, for example, after the discipline problem had been addressed, Trent opened a discussion about their joint work on a word unit simply by stating his growing conviction that it was as much social studies as English. On November 14, 1991, the teachers began by reflecting on the origin of a joint Remembrance Day Ceremony, but Jeremy shifted the meeting to discuss his need for discipline support during an upcoming absence. From there, Trent shifted the meeting to a discussion of
current work in English to see if there were any potential connections to his
planned work with a "moral dilemma" in the history of England. These shifts
are typical over the course of a year of meeting together--as a topic of discussion
was finished, the teachers shifted to other areas of concern or interest.

The absence of a fixed agenda, then, allowed the teachers to engage in
dialogues about their teaching. As Trent put it, the team members passed
through "housekeeping stuff" (discussions about students) to discussing what they were teaching. In response to a question about the dialogues of the team, Trent said,

When you sit down and relax and start actually talking about what interests you about your subject then you do start to exchange stuff a lot more. . . . I mean if you're meeting and there's no urgency to it, there's no agenda to it, what you talk about is what interests you. (Interview, June, 1992)

This talking about what interested the teachers was the core of the dialogues that opened connections between subjects. Lacking an agenda, team members engaged in dialogues that otherwise might have been precluded. This characteristic of their meetings was underscored by the fact that several productive meetings (from the perspective of planning interdisciplinary experiences) occurred on days when Catherine had confided to me that they had "nothing to meet about" and would probably meet only briefly if at all.

A possible negative consequence of the lack of an established agenda was the lack of closure and follow-through. The informal nature of the meeting structure allowed a teacher to shift topics before another teacher had finished her or his concern. An example of this occurred in the meeting of February 27, 1992. Trent began to make a suggestion about connecting the activities of the students in English, a presentation on illustrating by an author of children's books, with
the students' work in social studies, writing about historical illustrations. In the resulting conversation, which ranged over the current content in social studies, writing in science class, run-on sentences, and children's literature, Trent didn't even complete articulating his suggestion. The idea was simply lost in the unstructured conversation, and no one returned it in the following meeting. On numerous occasions, a team member's idea for an interdisciplinary experience was greeted favourably, but forgotten in subsequent meetings.

The data, then, indicate that the absence of an agenda helped establish an environment in the team meetings that allowed for dialogues about the teachers' current teaching and subject areas. Each teacher felt free to contribute to the direction of the dialogues, sharing control, since limits to discussion were not set in advance by one with power over an agenda (Hargreaves, 1989). This freedom entailed a tradeoff for the members of T8: the follow-up on suggestions and ideas was somewhat haphazard, depending upon teachers' recollection and initiative.

One important consideration related to the absence of an agenda focuses on the influence I may have exerted on the team as a researcher. I have noted that the team frequently dialogued about their current teaching and the content of their subject areas. Given that team members knew of the focus of my study (interdisciplinary experiences), it is conceivable that they guided the discussions to somehow satisfy or assist me. Each team member spoke of the fact that they met more regularly than they had in previous years (probably) due to my presence--in fact, in response to a question from grade seven teachers about how to make sure teams meet regularly, Catherine recommended they get a doctoral student. It is not unreasonable to speculate that my presence may have influenced their choice of topics, too. If this is the case, it seems that the team's
unarticulated agenda included the discussion of current work in various classes. This implies the need for teams to commit themselves to regular meetings and regular discussions about the work in each teacher's classroom.

The argument for team meetings controlled by an agenda, according to Bell (1990), is that this provides the necessary structure for productive meetings, with leaders bringing team members back in line when the discussion veers from the agenda. Merenbloom (1991), like Bell, argues that the leader should devise the agenda. The experience of T8 indicates that with a team committed to exploring interdisciplinary connections among subject areas, an agenda established by the team leader might actually inhibit the productive discussions (recall Catherine's questioning the need to meet). More important for making productive interdisciplinary connections is the commitment to meet and discuss the substance of their teaching, an unlikely item to be included on action-oriented agendas (see sample agendas in Merenbloom, 1991, pp. 73-74).

*Leadership and Decision Making*

Leadership has been identified as a key element of team success at the middle school level (Bell, 1990). While any team member could shift topics, Catherine took on special responsibilities in this area as the team leader. Catherine was selected by the team on September 27, 1991, to serve as team leader, though she had to be approved by the principal to take on this position. The team members agreed that it was Catherine's turn to be team leader, and that it would be Jeremy's turn in 1992-93.

In her exercise of leadership, Catherine collected the minutes (from me) and occasionally read aloud or referred to them. On some occasions, she started meetings by moving them from informal discussions to a more organized level with announcements such as "OK, let's meet," or by announcing something they
needed to accomplish in a given meeting. During the team's long-term planning (for 1992-93), Catherine's notes became the focal point of discussion in summarizing what had been decided, though both Jeremy and Trent took notes as well. Overall, however, her leadership did not require that she assert any official authority, nor did she assume any special role of initiating the planning of interdisciplinary experiences.

As the team considered ideas for interdisciplinary experiences (field trips, presentations, joint work), each member had what amounted to "veto power" over the others' suggestions. This veto might more appropriately be called a "pocket veto," since the teachers never directly rejected any suggestions. Instead, they would either not respond to a suggestion, which had the effect of ending discussion, or they would immediately raise concerns. For example, when Catherine first suggested that she and Trent might begin to work together in a unit on group values and Confucianism, Trent's response was that he was at least a month away from being able to do that. Later, Catherine rearranged her planned order of units to fit his schedule. When Trent suggested joint work on having students explain the reason behind illustrations, Catherine expressed resistance based on not wanting to mark more papers for her current project.

In this sense, then, the decision-making of the team proceeded in a consensus model, consistent with other middle-middle school teams (Merenbloom, 1991; Whitford & Kyle, 1984). No votes were ever taken; no overt conflict occurred; teachers responded positively to what interested or attracted them and built their interdisciplinary experiences around such commonalities. Jeremy's description of the team planning process for interdisciplinary experiences, which echoes the description one of Gehrke's (1991) teachers provided, seems apt to this: "I see one person as being the one who introduces the idea . . . . And then [others]
trying to make some hooks or attachments via our specific areas."

The pursuit of interdisciplinary experiences depended on those "hooks or attachments" as teachers expressed them. Thus, as teachers saw potential interdisciplinary experiences as meaningful (see "Deciding to integrate curricula: The Interdisciplinary Judgment Matrix"), they expressed their interest and commitment, leading to further action. Significantly, it was the judgment of a given teacher, not the implementation of policy, that formed the core of this consensus.

*Content Smorgasbord--Dialogism*

The heart of the team's planning of interdisciplinary experiences did not result from adherence to an established process or step-by-step procedure of planning interdisciplinary units. Instead, the team planning of interdisciplinary experiences arose out of dialogues centred on content and students' interactions with content. As planners, the teachers in T8 more closely resembled a group of chefs bringing together and enjoying together a smorgasbord of their specialties than a team of technicians devising a recipe for a single, all-encompassing culinary delight.

Let me illustrate. The meeting of November 20, 1991, gave rise to the joint unit on word histories and meanings (the word unit). In the course of that meeting, the teachers simply articulated what they were doing and what they intended to do in the near future. This conformed to Trent's (later) description of the process of integrating curricula: "It's simple. It just starts with a question: 'What are you doing?'" Catherine, in that November meeting, asked Trent what he was doing with the Saxons. Trent's answer did not lead to any interdisciplinary work. He laid out his specialty, but neither of the other teachers
responded. Later, he asked Catherine if she ever "rationalizes the value of literature." In the ensuing discussion of what Catherine was doing, Trent announced that he planned to do a lexicon of Norman and Saxon words, which was the beginning of the word unit. It was an idea Catherine felt attracted to, one she pursued for the reasons explained above.

The smorgasbord analogy, however, limits the interactions of the teachers to an extent that misses the richness of their work together. It is not simply that the teachers, as disciplinary specialists ("chefs") bring together pre-established curricular objects. The greatest value of the team interactions lies in the fact that through a *dialogism*, an *interanimation* that occurs when the voices of these disciplines come together, a richer version of each discipline and the connections among them emerges in the interdisciplinary experiences they create.

The concepts of dialogism and interanimation are derived from Bahktin's (1981) work on understanding the novel. Bahktin contrasts forms of literature that are clearly established and single-voiced (e.g., epic poetry) with the novel, which is in flux, gaining its character from "heteroglossia," the interacting of many voices and languages. Wertsch (1991) clarifies this interaction in his rejection of the transmission or "conduit" view of communication: ideas are not merely passed from a speaker to a listener as through a conduit; rather ideas take on new meaning through the "extended flow of speech communication" (p. 73). Interanimation is the way one speaker's utterances come into contact with another's, as each speaker lays down a set of answering utterances to those already spoken (p. 54). In this process, the language mediates or alters the ideas. As Bahktin (1981) explains,

> Within the arena of almost every utterance an intense interaction and struggle between one's own and another's word is being waged, a process in which they oppose or dialogically interanimate each other. The utterance so conceived is a considerably more complex and dynamic...
organism than it appears when construed simply as a thing that articulates the intention of the person uttering it, which is to see the utterance as a direct, single-voiced vehicle for expression. (p. 355)

Bahktin (1981) points out that any language is stratified by linguistic dialects and socio-ideological languages (such as those of a social group or profession). Thus, language use ensures that interaction among these forces occurs. Meaning is something one "rents" but cannot "own":

The word in language is half someone else's. It becomes 'one's own' only when the speaker populates it with his own intention, his own accent, when he appropriates the word, adapting it to his own semantic and expressive intention. . . . Language is not a neutral medium that passes freely and easily into the private property of the speaker's intentions; it is populated--overpopulated--with the intentions of others. (pp. 293-294)

The team's discussion on September 25, 1991, illustrates this interanimation. Having worked through a problem with teacher aides, the team spoke about a variety of other issues. Jeremy raised a question about one student's experience with visualization in Catherine's class. She expanded on the activity:

Catherine: Ah, yeah, he might have been one that was, ah, no, I don't think he shared what he visualized. But, you know, I was having them imagine that they were blowing bubbles and that they, and, and some of them might have been imagining some pretty weird things. You know, it could be, because they were inside the bubble and they were going up and what could they see outside it and then they'd, they'd blow a really big bubble and then they were dribbling it and throwing it up into the basket and catching it. And, ah, then we talked afterwards about, you know, what things they'd seen that weren't in the guided, you know, were they--I was trying to get them to control their images, to be able to control the image. And it was just about a ten-minute exercise, fifteen minutes, but I had music playing and the room darkened down a bit and, and, ah you know, we just talked about [inaudible].

Trent: You had them blowing bubbles?

Catherine: But a lot of them are just, you know, treating it really, and I'm, and I'm trying to do various exercises with them so that they can realize that they do have a lot of images that they can draw on.
Trent: That's neat. I can use that. I can build on that.
Catherine: Can you?
Trent: Because I've already talked about what history is in fact is, is the use of the imagination to recreate the past.
Catherine: Well would you build on that, Trent?
Trent: Absolutely.
Catherine: Because, I think that will be really important because some of these kids are just loving it and they're saying, 'When are we going to do this again?'
Jeremy: Yeah.
Catherine: But there's that element, F, M, and some of these kids, that are, they won't--
Trent: No, these--
Catherine: Close their eyes, they won't try it, and they won't--
Trent: That lends itself perfectly to this project I'm working on. We're, we're, they're digging up hard data about a culture that existed 1500 years ago, and, once they've found that data, what are they going to do with it? And, I've told them the past is created. It is the use of the imagination. You take the facts, as you can find them, and then to communicate those facts to people, you have to create something with them.
Catherine: Uh hmm.
Trent: And that is where the imagination comes in. You have an image of what a Saxon looked like, you have an image of what King Arthur looked like.
Catherine: Uh hmm.
Trent: Accurate or not, it doesn't matter. The point is you have to put flesh on your creation.

In this example, Catherine's creative visualization activity gains new meaning by virtue of Trent's contribution. The uncertainties Catherine may have been feeling (she initially mentioned the activity as a problem in light of the number of SLD students) about the activity are diminished by Trent's response. In addition, Trent's conception of the imaginative element of history has been broadened; he has a new resource to draw upon in his work with the students.

The smorgasbord element ("I can use that. I can build on that.") should not overshadow the power of the dialogism in the example. The teachers' views of their work together and even of their own disciplines are broadened in the
dialogue they engage in. It is not just that a history and an English teacher interact, but that the ideas and languages of history and English interact--interanimation occurs. Visualization, a creative technique in English, becomes a research technique in history. Borders between the disciplines begin a gradual shifting, so that the present, for example, takes on a more active role in understanding the past.

Bahktin's (1981) description of dialogism in the novel accurately portrays the value of dialogism in the meeting of disciplines:

Against the dialogizing background of other languages [read disciplines] of the era and in direct dialogic interaction with them (in direct dialogues) each language [discipline] begins to sound differently than it would have sounded 'on its own,' as it were (without relating to others). Individual languages [disciplines], their roles and their actual historical meaning are fully disclosed only within the totality of an era's heteroglossia, just as the definitive and final sense of an individual exchange in a dialogue is disclosed only when that dialogue is ended, when everyone has had his say, only, that is, in the context of the entire resolved conversation. (p. 412)

An experience similar to what Bahktin describes and the teachers of T8 lived out is reported in Walvoord and McCarthy (1990). In the course of an interdisciplinary study of writing in college, the researchers noted the contrast between their expectation of communication difficulties among disciplinary specialists and the reality of their dialogues:

Actually, however, some of our most interesting and productive moments occurred when our tacit, discipline-based notions about knowledge and texts and students' writing were called into question by other team members and, in the process, became more fully articulated. (p. 46)

The "productive moments" they speak of occurred as different disciplines interanimated one another. So, too, the teachers of T8 saw benefits as different
disciplines entered into dialogue.

Other examples of this sort of dialogism in T8 appear frequently in the fieldnotes. On November 20, 1991, the study of word meanings and etymologies took on value in both English and social studies through a dialogue on the issue. On December 2, 1991, a dialogue about names occurred, from which Trent focused on what names say about cultures and Catherine on the story of a name and naming. Each teacher's conception of his or her discipline was expanded in the contact between them, as evidenced by the teachers' adjustments of their use of the concept in class (Catherine, for example, decided after this conversation to include a "mini-lesson" on names in fiction). Moreover, Catherine learned from Trent about the sociolinguistic concept of doubling that occurred in English when the French and Anglo-Saxon cultures mixed. On March 10, 1992, a dialogue on the nature of problem-solving versus decision-making led Jeremy to revise his conception of these processes in his science class. In each of these examples, the disciplines begin to "sound different" than they would "on their own." Interanimation occurred.

Two qualifications regarding this dialogism need to be articulated. First, the dialogism and resulting interanimation occurred only when teachers actually engaged in dialogue. Thus, a team member who does not participate in a dialogue--actively contributing utterances--will not experience the interanimation of disciplines. Jeremy spoke far less than the other team members in most meetings, so science entered into the dialogue of disciplines less frequently. Certainly differences in the subject areas contributed to this situation. Both Trent and Catherine reported struggling with ways to connect their subjects with science. This suggests that the teachers' perceptions of differences between the humanities and science constitute limits to the dialogue.
Second, the data indicate that not all discussions led to this sort of interanimation. A great many utterances of the team members did not lead to response and dialogue. For example, in a December meeting where the teachers discussed an upcoming interdisciplinary experience (a presentation by a disabled person), Trent made a connection to his work with heroes (historical figures). He expounded briefly on the connection, but the other team members did not enter into dialogue on this issue, though a team meeting in May revealed that they saw significance in the topic of heroes for their subject areas. While it is unclear why no dialogue occurred on heroes in the December meeting, the example reveals the interactive requirement of the dialoguing to create interdisciplinary experiences.

*Planning Process and the Hackman and Oldham Model*

Viewing the process of planning interdisciplinary experiences from the perspective of the Hackman and Oldham (1980) model ("healthy interpersonal processes," see Figure 13) reveals a number of important features. The first consideration of the model at this level is coordinating efforts and fostering commitment. "Process losses" (Steiner, 1972) occur when groups rather than individuals are the working units, and coordinating efforts is a means of reducing the wasting of time and effort. Greater commitment leads members to expend more effort (Hackman & Oldham, 1980, p. 201).

The teachers in T8 clearly were committed to their team. They demonstrated this by their voluntary regular meeting together, their social contacts apart from the team meetings (in the staff room, for example), and their explicit declarations of commitment. Due to the size of the group, coordinating efforts was not difficult. No intervention by an "outsider" (Hackman & Oldham, 1980, p. 201)...
was needed or occurred to coordinate their efforts. The teachers' autonomy in working out the details of their interdisciplinary experiences maximized their personal efforts.

<table>
<thead>
<tr>
<th>HEALTHY INTERPERSONAL PROCESSES</th>
<th>INTERMEDIATE CRITERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Coordinating efforts and fostering commitment.</td>
<td>1. Level of effort brought to bear on the task.</td>
</tr>
<tr>
<td>2. Weighting inputs and sharing knowledge.</td>
<td>2. Amount of knowledge and skill applied to work.</td>
</tr>
</tbody>
</table>

Figure 13: "Healthy interpersonal processes" from the Hackman and Oldham (1980) model.

At one point early in the year, Trent suggested a means of maximizing effort. He proposed that rather than meeting together to plan interdisciplinary experiences, they each take released time separately to research on their own. In the end, the teachers decided not to work this way. They found their efforts most effective in their team discussions.

The second aspect of interpersonal processes identified in the Hackman and Oldham (1980) model is weighting input and sharing knowledge. The question implied is this: does the group operate as effectively as one would expect it to given the knowledge of its members? Often group members give too much or too little credence to the input of particular members relative to the members' knowledge (Hackman & Oldham, 1980, p. 202). Determining how a group member's ideas are weighted is extremely difficult, although the existence of patterns tells us something. For example, the teachers in T8 each demonstrated
particular knowledge areas which the others acknowledged and admired. Trent was the acknowledged visionary for the group, seeing connections among content areas and articulating these for the group. Catherine was a pragmatist, getting down ideas in black and white, and holding the group to a sense of accountability (she asked, for example, "How can we make sure we meet every week next year?"). Jeremy was, as Catherine put it, "the man with the timetable brain," able to coordinate groups of students, details of timing and travel.

Thus, there was a degree of weighting of inputs. However, given the discursive, conversational nature of the meetings, this aspect of the team's planning process might have been improved. An examination of the fieldnotes --whether summarized or transcribed records of meetings--reveals that Trent and Catherine spoke far more often than Jeremy. At times, Jeremy's ideas were lost in the flurry of conversation. Whatever the reason (he was the newest member of the team and the least experienced teacher, for example, and he stated to me a preference for listening and learning rather than talking), the Hackman and Oldham model implies that this group might have developed a healthier process if it had learned to evaluate and encourage contributions from all members.

Finally, the Hackman and Oldham model identifies implementing and inventing performance strategies as a way of improving group effectiveness. Groups might implement such strategies as the Nominal Group Technique, the Delphi method, brainstorming, or synectics, or they can invent appropriate strategies. As I indicated, T8 did not implement any established planning procedures, either from this general list of strategies or from the specific procedures recommended for planning interdisciplinary experiences. Instead, they operated from an informal strategy of dialoguing. As Catherine described it, "we'd sit down and we'd spend our whole block . . . and we just kept talking
about what we could do and, ah, we didn't have a formula to follow." Given the nature of their task--making connections between knowledge areas--the strategy of dialoguing was an effective means of accomplishing this intellectual work.

Summary

The planning process the team engaged in consisted of dialogues centred on their current content and activities. Rather than following a formal structure and agenda, the norms of the group allowed each teacher to introduce a topic of discussion. The team did not vote on issues; rather, each teacher retained a power to "veto" planning of interdisciplinary experiences either by failing to respond to a suggestion or by raising concerns and objections. Team members pursued interdisciplinary experiences by consensus, autonomously devising specific activities and making allusions to others' work based on the team dialogue.

Planning Concerns of the Team

The literature on teacher planning has a tradition of exploring the influences on teachers as they plan (e.g., McCutcheon, 1980, 1981; Sardo-Brown, 1990; Taylor, 1970; Zahorik, 1975). One way of exploring these influences in the context of planning interdisciplinary experiences is to focus on the planning concerns of the teachers. Data from two perspectives on this issue were examined: concerns teachers expressed individually in relation to planning interdisciplinary experiences and concerns manifest in the team interactions as the teachers planned interdisciplinary experiences. This section examines the question, what planning concerns surfaced among the team members as they planned interdisciplinary experiences?
Several categories of planning concerns emerged in this analysis: student-related issues, the mechanics of planning, relations with the school at large, resources and materials, timing and flow, and concern for subject area and the curriculum. The planning concerns of the collaborating teachers were consistent with findings of other researchers regarding influences on teacher planning. In this, the data provide corroboration of such findings as the following: teachers find the students and instructional context an important consideration (Borko & Niles, 1987); they consider content, resources and materials in planning (Brown, 1988); teachers' beliefs and knowledge and skills influence planning (McCutcheon, 1980, 1981). A number of findings bear specifically on planning in the collaborative context, raising questions about how teachers think about the timing and flow of their courses and how their subject areas are restricted by the formal curriculum. Significantly, the team's concerns about collaborative planning raise the possibility of such planning taking on a subversive role in the school as an organization.

**Student-related**

The most frequent type of concern manifest in team meetings was related to the students. In their team meetings dealing with interdisciplinary experiences, teachers often referred to such issues as student motivation, behaviour, and special needs. Teachers also spoke of these issues in individual interviews (especially motivation and behaviour), though they were more likely to focus on questions of knowledge connections among subject areas in this context.

**Motivating Students**

In designing interdisciplinary experiences, the team members frequently cited
the importance of motivating the students. For example, in December, the chief criteria Catherine and Trent employed in selecting words for the word unit was the "excitement" factor. Thus, words that only demonstrated "social significance," such as cow and beef (with implications about the hierarchy of Norman England), were rejected as being not very interesting despite the underlying socio-linguistic principle. Catherine expressed doubts in January about the students' being interested in seeing the film Beauty and the Beast as a part of the fairy tale unit. Her teammates not only reassured her that the students would be motivated in this, but they also took it upon themselves to "pump it up" in their classes, reading portions of the story aloud and discussing the students' reactions to the film in light of their courses.

In May, as the team planned the next year's potential integrated themes, motivation became a measuring rod. Trent described the basis of their selection of themes as "wanting to establish something that's coming from the kids' lives." Thus, for example, an early focus in 1992-93 on philosophy and religion in social studies was rejected on the grounds that it would be too abstract to interest the students, even though it fit well with the team's desire to start the year with a unit on the importance of the group. Indeed, Trent's final suggestion about the list of potential themes the team developed was to run the list by the kids to see how they responded to themes, though Jeremy argued that the team itself had a strong enough notion of what interests their students to be able to make that determination themselves. In the end, the team did not gather student input on the list of themes.

Student Behaviour

Closely related to the issue of motivation is student behaviour. As the team planned interdisciplinary experiences, questions and concerns about student
behaviour frequently arose. For example, when the team considered joint work on a religion and philosophy conference in May, Jeremy expressed concern about (student) audience behaviour during student presentations. As the team arranged details for a presentation by a disabled person in December, they were concerned about the size of the audience and behaviour. Indeed, the basis for the team's plan to begin the next school year (1992-93) with a joint unit on the importance of the group was the teachers' perception that they had failed to teach the students how to behave properly toward one another.

Concerns about student motivation and behaviour in the context of the collaborative planning of interdisciplinary experiences are not surprising. Other researchers have documented this concern for teacher planning in general (Taylor, 1970). However, two aspects of this category of concerns deserve further examination: implications of the concerns regarding the substance of team meetings and implications for professional growth.

The common perception that middle school teams discuss students, but not curriculum (Beane, 1990; Bullough & Gitlin, 1985; Johnston et al., 1988; Whitford & Kyle, 1984) may deserve re-examination in this light. Concerns about students arose in discussing curriculum--and concerns about curriculum arose in discussing students. It may be that the dichotomy researchers perceive in the substance of team meetings is viewed entirely differently by teachers. In the case of T8, talking about interdisciplinary experiences also involved talking about students. Admittedly, there were numerous occasions when the team discussed students apparently without reference to interdisciplinary experiences. The findings of this study, however, call into question any such sharp division of the substance of team meetings. In Bell's (1990) study, teams with more goals and activities also talked more about students than less productive teams.
Second, expression of student-based concerns often led to professional growth opportunities for the teachers. In dealing with student-related concerns, the teachers often discussed pedagogical principles. For example, when Catherine couldn't decide whether to have students do the final project of the word unit in pairs or alone, Trent argued that pairing students just provided an excuse for them not to do any work. At a meeting in November when the teachers were discussing motivating students (though not specifically in the context of interdisciplinary experiences), Jeremy explained the value of students offering other students feedback. The "watchdog" technique he described was in use in Catherine's class by the next week, and it was suggested as an aspect of evaluation for an interdisciplinary experience involving world religions in the spring. Thus, the pedagogical principle became an interdisciplinary experience for the students. Also, Trent's dictum that students must produce work for each other for it to be meaningful found expression in the projects in both Catherine's and Jeremy's classes, and Jeremy attributed his project work directly to the influence of discussions with Trent.

Of course, such collaboration need not be limited to planning interdisciplinary experiences. The teachers experienced opportunities for professional growth by virtue of their discussions about student-related concerns: they shared techniques and insights; they modified their practices. Little's (1990a) conceptualization of professional growth going beyond the classroom applies to this perspective on the student-related concerns. Expressions of student-related concerns provided opportunities for growth for the teachers in T8. One might argue that such growth could have occurred even if the teachers had not discussed interdisciplinary experiences. However, as indicated above, the intermixing of student issues with interdisciplinary experiences was, for these
teachers, a common pattern.

The Mechanics of Planning

A second category of planning concerns among the teachers focuses on the mechanics of planning. Issues such as the size and features of the interdisciplinary experience, flexibility in relation to other units, and the details of planning arose. These types of concerns demonstrate that the teachers, despite their flexibility, came to their work together with strong expectations about collaborative planning.

Both in their planning of immediate interdisciplinary experiences and in their long-term thematic planning, the teachers resisted specifying the duration or extent of any given unit. For example, when the team discussed plans for its opening theme for 1992-93, Catherine, who had a practice of specifying unit sizes in advance, asked if they envisaged an open-ended approach lasting two to three months. Trent responded that it would be better to keep it shorter since long units are difficult to focus. However, the teachers did not commit to any specific framework of time for a given experience. Nevertheless, the number of questions they raised about the size of units betrayed a genuine concern with this issue. Jeremy, for example, on numerous occasions expressed his frustration with interdisciplinary experiences such as the Renaissance Unit or the word unit as not being "clear on what the magnitude of it was when we started--if it was gonna be something that was two weeks or two months." Trent spoke of the importance of the size of a unit in relation to the students' experience. To work on something too early was to let "the kids go off the boil"; to work on something too long meant having to "drag a lot of kids who didn't understand why we were doing it this way." Catherine, too, argued for keeping units shorter.
In their concern about the size of interdisciplinary experiences, the teachers demonstrated two key features. First, in terms often referring to their experience of the Renaissance Unit, the teachers disparaged any lengthy units. Significantly, they did not clarify what was too long, except to argue for units shorter than their experience with the Renaissance Unit. Second, the teachers steadfastly resisted specifying the length of any interdisciplinary experience in advance. Jeremy's apparent discomfort about the indeterminate size of interdisciplinary experiences did not push the team to demarcate unit sizes clearly. It seems that flexibility was of greater importance than predictability at this level.

Flexibility was also a matter of concern in relation to deadlines and each teacher's adjusting a course to fit student interests. As more than one teacher agreed on a deadline or common activity, this reduced the flexibility of individual teachers. Trent spoke of the common deadline for the Renaissance Unit as the sort of feature of a unit that made teachers inflexible. The teachers also expressed concern that their commitment to interdisciplinary experiences might not allow them to adjust to the interests of the students. Trent described one of the dangers of planning this way: "They [teachers] have a plan and by God they're going to follow it. Never mind how the kids are doing." This concern with flexibility explains why the team agreed on a starting theme for 1992-93, but refused to specify a flow beyond that point. Each teacher individually expressed to me a fear of being "locked into" themes.

A final concern about the mechanics of planning interdisciplinary experiences highlights the process of planning itself: the teachers expressed a desire to specify details, but resisted doing so. Often during the year, teachers made comments such as "we need to talk more about this." They apparently deferred the working out of specific details. Thus, while there was a rich dialogue from which ideas arose, the follow up was often weak. This matched
Trent's personal style well, since he felt comfortable in the spontaneous working out of details of a lesson (in fact, he thought such lessons worked better). However, Catherine and Jeremy were less comfortable with this. Catherine, for example, expressed a desire to focus more on specific details in the team's planning: "I think we, if we want to be really practical and have the kids aware of us as a team, then we need to be a little more structured as far as how we're doing that." She also wanted to be more systematic in anticipating interdisciplinary experiences, because "these things aren't just going to happen . . . unless you've thought about it and planned it on your timetable." Jeremy, during his work on the MacGyver unit, expressed dissatisfaction in not having talked out more of the details with Trent.

These concerns about the details of planning interdisciplinary experiences--the size of units, specific unit features, and flexibility--betray a degree of ambivalence in the team. While the dialogues the team engaged in provided a rich source for interdisciplinary connections, the team members clung to their planning autonomy in the name of flexibility. On the one hand, team members were committed enough to devote at least one preparation period in three to meeting, often using that meeting time to engage in dialogues that fostered interdisciplinary connections. On the other hand, perhaps due to their experience with the Renaissance Unit, they continued to retain independent control over specific planning acts. Despite some expression of interest in greater coordination, the team continued to operate on the principle of autonomy. This reflects the observation of Little and Shulman (1984) that working on interdisciplinary teams "runs counter to teachers' usual experience; most were accustomed to working independently" (p. 64).
Resources and Materials

Consistent with the findings of earlier researchers on teacher planning, the data indicate that the teachers in T8 were concerned about resources and materials as they planned interdisciplinary experiences. However, their concerns were generally parcelled out individually. That is, rather than having a concern that the team find enough resources and materials, individual teachers worried about these issues in relationship to their participation in interdisciplinary experiences. For example, in considering the theme of alienation from the group, Catherine spoke much about finding books that were topical, but not too hard for the students. As the discussion progressed, Trent made several suggestions of materials and resources Catherine could use--not materials that they might use together. This pattern repeated: each teacher would begin to discuss possible materials and resources for a given theme, with the others contributing suggestions. One apparent exception to this occurred with the word unit. Catherine and Trent agreed that a particular film series about the history of the English language would be useful to both of them, and though the films were shown in Catherine's classes, they were a common resource.

In selecting themes for their long-term planning, the team, at Trent's suggestion, established one of the criteria as the availability of materials of sufficient quality. He argued that interdisciplinary experiences wouldn't happen if the materials weren't available in forms that students could use. (He specifically opposed the idea of teachers' photocopying materials for interdisciplinary experiences.)

The concern with locating resources is consistent with the individual teacher's approaches to planning. It is, however, interesting that the team did
not share responsibility for resources. As the discussion of unit planning suggested, this may have been part of the teachers' autonomy.

The importance of materials and resources also suggests a limitation to the kinds of interdisciplinary experiences this team was willing to consider. Each teacher operated with subject-specific curriculum guides and materials. While they demonstrated a willingness to adapt to their teammates' work, the teachers appeared unlikely to initiate interdisciplinary experiences for which the materials base was not readily available. This demonstrates the impact of the concept of work technology in the Hackman and Oldham (1980) model of group effectiveness.

**Timing and Flow**

Planning interdisciplinary experiences raised concerns for the team members about the timing of units and the flow of the year. These concerns focused on the progression of a given course (such as the logical connections in the social studies topics) and the relationship of units of study to seasonal issues (such as the placement of holidays). These concerns, which were present in each teacher's planning, were complicated by the collaboration among teachers.

Timing an interdisciplinary experience involved each teacher's reconciling it with the flow of a course. When, for example, Catherine initially suggested joint work on the theme of alienation from the group, Trent expressed a concern about what he would lose by stepping out of the logical progression of his course. Because the shift in flow was less disruptive to Catherine, she rearranged her order of units. At other meetings throughout the year, teachers would articulate the flow of their courses ("this is my current unit") and this became a starting point for discussing interdisciplinary experiences.
The second sort of concern relates to the rhythms of the year (Connelly & Clandinin, 1988). For instance, Catherine and Trent agreed to launch the word unit as soon as the students returned from Christmas vacation. When the order of themes for 1992-93 was discussed, teachers expressed concerns about how one starts a school year, how one ends a school year, and what sorts of activities would be motivating to students at different times of the year. For example, Catherine worried that placing her fairy tale unit too near the end of the (1992-93) school year would risk the students' viewing it as too juvenile. In considering interdisciplinary experiences, Trent pointed out the need to get past Thanksgiving and Halloween, clear marking points in the rhythm of the planning cycle (see Connelly & Clandinin, 1988).

These concerns did not differ significantly from planning concerns expressed by the teachers in their independent work. Thus, the influence of timing appears to be consistent whether teachers plan independently or in collaboration. However, the impact of coordinating these concerns at the collaborative level may make planning interdisciplinary experiences more difficult, since the variables (flow of several courses and seasonal considerations) increase.

The complexity of coordinating these concerns argues for more concentration on long-term (yearly) planning of interdisciplinary experiences. When the teachers designated interdisciplinary themes for 1992-93, they established a sequence that allowed the teachers to build a logical progression among topics so that concerns about timing might be addressed. However, as I pointed out earlier, the team was willing to commit only to the first theme (importance of the group), intending to re-evaluate after that experience.

Subject Areas and the Curriculum

Teachers demonstrated concerns related to their conceptions of their subject
areas and their views of the role of the established curriculum relating to interdisciplinary experiences. The team members differed in their concerns here.

Each teacher declared a basic disposition regarding her or his subject area and interdisciplinary experiences. For Trent, "The wonderful thing about teaching social studies is that everything is relevant!" He readily perceived connections to his subject area. Catherine, on the other hand, feared for the integrity of her subject area: "I worry about the subject of English literature being watered down so that maybe the social studies curriculum would drive what you were doing." Jeremy most often argued for the blurring of the subject areas in integration; at the same time, he had difficulties seeing how science could be connected to other areas and he felt an obligation to start with the science.

What is interesting is that each teacher agreed, to some extent, with the credo of integration that claims everything is somehow connected, but each teacher also saw cause to differentiate. Catherine spoke of the "artificial boundaries" between the disciplines, yet worried about the integrity of English and whether the students would find sufficient opportunities to interact with texts. Trent said that everything was relevant to social studies, but pointed out there's a "danger because if things become too universal, then what's the point of studying anything in particular?" Jeremy, too, idealized a form of integration where the students wouldn't even know what class they were in, but also realized that "a lot of these connections . . . I'm not seeing, at least, with our curriculum."

The curriculum, then, clearly entered the concerns of each teacher (see the discussion of "curricular content" above). Despite proclamations about flexibility and criticisms of their curricula, these teachers continued to concern themselves with the demands and standards of their established curricula and their sense of what their subject areas entailed. There was an awareness among the teachers
that their dealings with students at a given grade level affected their subject areas at other grade levels. Jeremy in particular noted this. Although he said he admired a science teacher whose attitude toward other grade levels was "they'll get what we give them," he also expressed frustration at having teachers from grade seven infringe on grade eight material:

Although it may have been very powerful to that teacher in grade seven to have used that, maybe it was a teachable moment, whatever, the fact is that it does disrupt. You know, it inhibits my ability to be completely successful with those kids next year, and . . . I can't really see a teacher not being concerned about that. (Interview, July, 1992)

Part of the contrastive rhetoric of the team, however, involved stories of teachers who inflexibly adhered to curriculum guides. They occasionally referred to previous experiences in teaming with math and language teachers in this context. Trent, for example, referred disparagingly to "Mr. Forty-nine Percent," a math teacher whose dictum was, "math is an unforgiving subject." They all recounted experiences with a language teacher's rigid adherence to the curriculum, which effectively eliminated the possibility of creating interdisciplinary experiences including this subject.

Team members, then, disparaged rigid adherence to a curriculum guide while at the same time articulating a loyalty to the same guide. This tension is not surprising, given the interdisciplinary thrust of the middle school movement (Carnegie Council, 1989; National Middle School Association, 1992) and the subject specialist identity of secondary and middle school teachers (Ball, 1981; D. Hargreaves, 1980; Lieberman & Miller, 1984; Vars, 1987). The concerns of T8 about the curriculum demonstrate that planning interdisciplinary experiences, for them, involved a complex balancing of competing demands. Their commitment to creating interdisciplinary experiences necessitated making
judgments about when and to what extent they should depart from subject-specific curriculum guides.

**Relations with the School at Large**

Tension in the team arose as the teachers recognized their work together was creating a "school within a school." By the end of the school year, even Catherine, who expressed most discomfort with this idea, saw this development as a "very good" one. However, on numerous occasions throughout the school year, the teachers worried that their activities (especially interdisciplinary experiences) would cause conflict with the school at large. This finding raises the possibility that collaborative planning of interdisciplinary experiences might exert a subversive influence on the larger organization.

At the organizational level, the teachers expressed concerns that their activities might alienate the rest of the staff. For instance, in organizing large-group presentations or field trips, the team members worried that other teachers would object to students' being pulled out of their classes (an attribute of the four blocks for three teachers setup). The teachers in T8 also expressed concern that other teachers would resent their "driving the timetable" to have a common preparation period in order to meet regularly. Certainly the teachers in T8 reported resentful comments from the teacher who actually built the timetable.

More significantly, the teachers worried that their planning of interdisciplinary experiences would somehow set off their students from the rest of the school, a concern that was affirmed when a grade seven teacher told the team it was a "sore point" for the other grade eight students. For this reason, when Catherine planned the field trip to view *Beauty and the Beast*, she opened the activity to other grade eight teachers, only to be encouraged not to do this by
Jeremy and Trent. Early in the year, when Trent described the possible plan for interdisciplinary experiences associated with Remembrance Day, he allowed the possibility that school activities might supercede team activities. At the meeting with the grade seven teachers, the team was told that parents were phoning the school to request that their children be placed on the team rather than in unteamed classes. When the teachers discussed their thematic plans for 1992-93, they worried that getting into such areas as portfolio assessment and positive reinforcement would be encroaching on what the school should be doing for all its students. In the end, this concern was alleviated by the team members' agreeing that they simply couldn't wait for the school to act.

This list of concerns parallels the finding of Mills et al. (1992, p. 18) that interdisciplinary teams become "islands in the stream," experiencing isolation from other teams, grade-level and departmental colleagues, and the school as a whole. Significantly, however, the isolation T8 concerned itself with was not based on spatial arrangements of team classrooms, the daily schedule, or interteam isolation (there were no other teams), key explanatory factors in the Mills et al. study. The isolation of concern to T8 arose primarily out of the team's attempts to create interdisciplinary experiences for the students, though team members, like those in the Mills et al. study, complained that subject matter departments did not meet often enough. Thus, the planning of interdisciplinary experiences became, for T8, a team activity which engendered this "island" isolation.

A much-touted aspect of teaming in middle schools in the United States is the development of a team identity (Erb & Doda, 1989; Merenbloom, 1991). At Waterfront, the development of this team identity was problematic for the teachers of T8. They openly rejected what Trent characterized as the "ra ra approach" to team-building, the American model, according to Catherine. At the
same time, their interdisciplinary experiences did set them off from the rest of
the school. As planners, they had to consider how they would respond to the
institutional consequences of their interdisciplinary experiences.

Summary

The planning concerns mentioned by team members and manifest in team
meetings revealed commonalities with earlier research on teacher planning. For
example, the team appeared to be concerned about student motivation and
behaviour. The team also concerned itself, as earlier research suggested, with
resources and materials, which entails certain limitations to the kinds of
interdisciplinary experiences a team might be expected to pursue.

Supplementing earlier findings on teacher planning, the data indicate that
the teachers in T8 concerned themselves with several mechanics of planning:
the size and features of units, how to decide on specifics in planning, and
flexibility. The timing and flow of units, already shown to be an important
aspect of teacher planning (Connelly & Clandinin, 1988), proved to gain new
complexities when teachers plan collaboratively. Also, as the teachers attempted
to connect their subject areas, concerns arose about what was happening to their
subject areas and the curriculum guides they were accountable for.

Significantly, concerns about how collaborative planning of interdisciplinary
experiences affect the team's interaction with the school arose. While there was
no evidence that the administration or other teachers exerted pressure on the
team for their activities, the team members themselves frequently expressed
uncertainty and discomfort about their possibly expropriating school functions.
A new concern arose in this collaborative context: how will interdisciplinary
experiences set off the students from the rest of the school? The teachers in T8,
in the end, decided the benefits of interdisciplinary experiences were worth the possible costs.

**Impact of the School**

The data in this study indicate that T8 operated with a low level of organizational support. The team members perceived a complete lack of interest on the part of the administration, and there was no evidence to contradict this perception. Other staff members knew little of the operations of the team, and no comparable teams existed in the school.

The Hackman and Oldham (1980) model of group effectiveness, which stresses the impact of the larger organization on a group, would suggest that such a situation would threaten the group's effectiveness. Specifically, the model identifies rewards for good performance, availability of training and assistance, and clarity of task requirements and constraints as three key features of a supportive organizational context. The question arising from this is "What was the impact of the school as an organization on the team as it collaboratively planned interdisciplinary experiences?" The following section examines data relating to the impact of the school on the team under the concepts suggested by the Hackman and Oldham model: rewards, training and assistance, and clarity of task requirements and constraints.

**Organizational Support: Rewards vs. "Motherhood Stuff"**

*The Administration and Teaming*

The administration clearly considered teaming in organizing the school, though not necessarily the kind of teaming T8 advocated. The principal
demonstrated a concern for teaming in various ways: the timetable featured teams, the student handbook promised teaming, the staff was organized into nominal teams, and the principal talked teams in presenting the school to others. Despite official support for the concept of teaming, teachers at the school felt that teaming was not supported or rewarded.

Before the school year began, the principal showed me his timetable of teacher assignments, emphasizing the careful work necessary to create a common preparation period for all the grade seven teachers so that they could team. What this teaming consisted of was unclear: these teachers did not share common students, they did not meet regularly, and they did not work to create interdisciplinary experiences (although they did organize some social activities such as a skating party). Though I met with the grade seven "team" before the school year started, the vice principal later confirmed that there simply was no team activity--no regular meetings and certainly no interdisciplinary work--during the school year. The May meeting where the vice principal and the grade seven teachers invited T8 to present on teaming reaffirmed this. The vice principal commented in November that for teaming to work at a school, "teaming has to be the priority." He added that the way Waterfront was structured, teaming couldn't work very well.

Despite the vice principal's comments, on paper, the administration advocated both teaming and interdisciplinary instruction. The Waterfront Middle School Student Handbook said students in grades seven and eight would be on teams for many of their courses. The Waterfront Middle School Newsletter #2 (1991) repeated the school mission statement, which called for clarifying relationships among subjects:

Curriculum programmes should emphasize the natural relationship among academic disciplines and facilitate cohesive learning experiences
for middle school students through integrated themes, topics and units. Interdisciplinary goals should overlap subject area goals and provide for interconnections such as reasoning, logical and critical thought, coping skills, assuming self management, promoting positive personal development and stimulating career awareness. (p. 1, emphasis added)

The principal also used nominal teams as an organizational system for the school. According to his memorandum (September 30, 1991), leadership positions in the school were not departmentally-based, but team-based. Two "inter-disciplinary" team leaders were appointed at the grade seven level, two at the grade eight level, and two "grade nine team leaders" were appointed. At each level, one of the team leaders was to be responsible for the math/sciences strand and one for the humanities/arts strand (in keeping with the provincial curricular organization proposed in Year 2000, British Columbia, 1990b). On an organizational flow chart, teaming would appear central to the school.

In practice, however, teachers, except for those in T8, did not identify with teams. Trent testified to this. He was a "grade nine team leader," and he said there was no team to meet with and nothing to talk about. Also, the two teams the principal had described to me at the grade seven level simply never emerged.

Various teachers complained that the administration publicly presented teaming at Waterfront as a model of successful middle schools, which is how the principal described Waterfront to me. The members of T8 were particularly disturbed about school personnel publicly presenting Waterfront as a model middle school, "dispensing middle school philosophy" about teaming. Presentations on Waterfront were reputed to include descriptions of effective teaming. Though I did not witness any such presentations, I did observe team discussions expressing dismay over this situation, and nonteamed teachers spoke to me about this as well. The principal attended none of the team meetings, and
as far as the team knew, had no idea what was going on in the team itself.

It seems that one productive means of rewarding this team might have been for the administration to include T8 in the making of presentations, or at least to have consulted these teachers as the only practicing team. Teamed teachers in Bell's (1990) study, for example, mentioned the "need for principals to notice and appreciate the work that was taking place on teams" (p. 159). Catherine complained that the presentations about middle school philosophy were based on gleanings from literature rather than the experiences of the school itself. Clearly this team responded positively to the one opportunity it was given to speak about teaming (the May meeting with the grade seven teachers). Perhaps acknowledging the team's work in creating interdisciplinary experiences by inviting team members to talk about their experiences would have provided a meaningful reward for these teachers.

_T8 and Teaming at Waterfront_

The sole team, then, despite the school's organizational structure, the student handbook, school newsletters, and school-sponsored presentations about the middle school philosophy, was T8. Of official school policies regarding interdisciplinary teaming, Catherine said, "That's motherhood stuff." All the team members expressed frustration that the administration did not support their work. Far from feeling rewarded for their work in creating interdisciplinary experiences, the team felt it survived _despite_ the school's indifference.

In November, when I asked Trent what the status of teaming was in the school, he responded, "Zero." Catherine's response when I asked her to characterize the support offered by the administration for their interdisciplinary work was "Zilch." "It's just a total lack of awareness and maybe interest. No
interest shown." The existence of the team, she said, was expedient in high-profile situations, but "we feel like . . . no one knows what we're doing."

Jeremy volunteered an anecdote that he thought demonstrated the administration's attitude toward teaming. At the end of the 1990-91 school year, he checked the proposed master schedule for the next year and noticed that Catherine hadn't been placed on the team. He immediately asked her if this were her request; it was not. He managed to get the schedule changed, but the incident became for him a measure of the importance of teaming in the school: "But the kind of subtle message was that, you know, the team concept wasn't . . . foremost in their [administrators'] minds." In May, he told the team of encountering the principal in the hall before one of the day-long meetings to plan for 1992-93. The principal, Jeremy said, commented that this planning was "assuming you'll be together next year." Though Jeremy said he thought this was intended as a joke, the story sparked comments from Jeremy and the other team members about the school's lack of support.

Indeed, members of T8 perceived their isolation as the only team as a potential threat to the team's existence. At an April meeting where the team met to plan interdisciplinary experiences, instead they devoted their time to discussing how to keep teaming alive. The team members decided to become "champions" of teaming (an "ambassador" activity in Ancona and Caldwell's [1988] terms), because they feared that if they didn't do so, teaming would simply disappear from the school. As they prepared to present on teaming to the grade seven teachers in May, Trent explained the urgency of their presentation: they had become "a little island" in the school, and if they didn't sell the concept of teaming, the timetable might be constructed in a way that broke up their team, since others perceived it as driving the timetable. They experienced the sort of
team isolation reported in Mills et al. (1992).

This "ambassador" activity (Ancona & Caldwell, 1988) underscores Ancona and Caldwell's contention that natural groups, unlike laboratory groups, experience important interactions with those outside the group. It is likely that in an environment that encouraged teaming and promoted the creation of interdisciplinary experiences, the "ambassador" and "scout" activities of a team would focus more on discussing and planning such experiences. In the environment they perceived as nonsupportive, the members of T8 devoted their "boundary spanning" (Ancona & Caldwell, 1988) energies to assuring the survival of teaming.

Other Teachers' Attitudes

The issues of curricular integration and interdisciplinary teaming were not entirely absent from the discussions among the other teachers. However, the staff demonstrated little awareness of or interest in T8's activities and curricular integration. For instance, at a November staff meeting where teachers discussed student needs, an English teacher pointed out that an entire paragraph of the mission statement (see pp. 220-221) dealt with interdisciplinary issues, yet there was only one team at the school and the staff had completely ignored the issue in their discussion of student needs. Other staff members murmured agreement to her comment, and the issue later appeared on a needs assessment survey, though the staff did not pursue a discussion of the issue at that meeting.

The "personal growth plans" filed on a chart by staff members showed only minor interest in interdisciplinary experiences. Twenty-eight of the 35 teachers listed indicated areas of interest. Of these, three mentioned "developing on an interdisciplinary team"--the teachers of T8. Only two other teachers mentioned
anything about connecting different subject areas. When the school took part in a district-wide professional-development day activity, only a few Waterfront teachers in addition to T8 elected to attend a session on curriculum integration.

Other teachers appeared to know little about the work of T8. In May, the vice principal arranged for T8 to speak to the grade seven teachers to explain what teaming meant to them. At this meeting, one teacher asked the team if they did any curricular integration\(^6\), demonstrating that at the school itself, the work of the team was relatively unnoticed. Clearly, if the administration was indifferent to the team's work, the rest of the staff offered no collegial support either.

There was some counter-evidence on this issue. When staff members prioritized a "needs assessment" list in preparation for dealing with architects planning a new building, the two items receiving the most support (equally) were to establish a student discipline policy and to "Design timetable alternatives to allow for interdisciplinary teaching teams." This demonstrates that there was an awareness of teaming and the interdisciplinary purposes of teaming, and perhaps an attraction to the idea. However, the cool reception of the grade seven teachers—at least as T8 perceived it—to T8's presentation seems to diminish the significance of the survey.

**Group Effectiveness and Support**

The Hackman and Oldham (1980) model would suggest that such indifference (there was no apparent opposition to the interdisciplinary work of T8) on the part of the school would seriously limit the effectiveness of the group's planning interdisciplinary experiences. One can only speculate about the effect an encouraging, supportive administrator might have had on the team. Bell (1990), too, found that the middle school teams she studied were concerned about lack
of support from their principals. However, it appears that the indifference of the administration and the lack of attention by the rest of the school did not hinder the team's creating interdisciplinary experiences. Why?

The data suggest a plausible explanation: the personal support and relief from isolation offered by the team ("interpersonal rewards" in a cohesive group, Cummings, 1981) provided adequate rewards to motivate team members to continue in their team tasks. Each teacher spoke of the team as a tremendous support for her or him individually. Jeremy publicly called the team "one of the best things about being at this school for me." Also, each teacher saw the planning of interdisciplinary experiences as one of the purposes of teaming. Their meetings--supportive for a variety of reasons--included as one legitimate reason for meeting the creation of interdisciplinary experiences. When I asked Catherine how she explained their continued work in the absence of rewards and support, she said there was "such satisfaction" in their work together that the indifference of the school was not an issue. Trent spoke of the enjoyment and freedom in their discussions:

I think the fun of talking across the disciplines is there's no problem in sharing what you're doing. No one's gonna criticize you for it or comment on how appropriate it is or whether or not you're flying in the face of the curriculum or what. (Interview, June, 1992)

The findings of this study suggest that the Hackman and Oldham (1980) model of group effectiveness may overemphasize the importance of a supportive organizational context in relation to a teaching team's planning interdisciplinary experiences. The teachers of T8 all spoke of the isolation most teachers experience, and they all agreed that their work on the team relieved that isolation. The possibility of enjoying collaborative relationships in an organization traditionally marked by isolation (Ashton & Webb, 1986; Lortie,
1975; Pellegrin, 1976), apparently provided a kind of support for these teachers that compensated for organizational indifference. Clearly one cannot attribute this solely to their work in creating interdisciplinary experiences, though that is arguably part of the non-routine task-focus that moves groups to more collaborative relations (Little, 1990a, citing Cohen, 1981).

Collaborative relations.

The team created a collaborative subculture within the organization that offered team members practical and emotional support, a sense of belonging, and opportunities for professional growth. In Little's (1990b) continuum of collaborative relations, the team operated primarily at the levels of sharing and joint work. Significantly, their collaborative planning of interdisciplinary experiences became a key factor in moving their collaborative relations from sharing to joint work, though their conception of interdisciplinarity as "integration by allusion" moved them back to sharing. Other aspects of their work together also pushed them in this direction—for example, solving the problem they perceived with teacher aides. However, the most consistent focus for their joint work was the planning or discussion of interdisciplinary experiences.

While I did not collect enough data on the school as a whole to characterize its culture on Little's continuum, my observations (in the staff room, at assemblies, at staff meetings and professional development activities) revealed a collegial staff, but significantly less collaborative than T8. I did, for example, witness attempts among staff members to share problems at the school level, though the issues were not arising from individual classrooms. I observed a willingness on the part of staff members to express beliefs and opinions.
However, the degree of collaboration appeared to be significantly less than that of T8.

The contrast between the culture of the school and the subculture of T8 leads to two observations. First, in relation to Little's (1990b) levels of collaboration, these data indicate that characterizing a school as a collaborative culture (or not collaborative) is problematic. Pockets of collaborative relations might exist in an otherwise independent environment. Second, teaming and especially task-focused activities in teaming (i.e., planning interdisciplinary experiences) may be catalysts for increasing the degree of collaboration (see Little & Shulman, 1984). The collaborative planning of interdisciplinary experiences became for T8 a reason for the teachers to engage in joint work.

The collaborative subculture of T8 bears on the issue of the Hackman and Oldham (1980) concept of the composition of a work group. Each team member stressed the importance of the right people to make teaming work. Catherine said, "You've got to have people on a team that you enjoy and respect and want to be with." Trent and Jeremy, likewise, underlined the need for team members to fit with one another. Certainly the stories Trent told about "Mr. Forty-nine Percent" confirmed this. Even the team's experience with another teacher, whom they liked and worked well with, highlights the issue of the group's composition. As Jeremy put it, they felt like the team lost something when this teacher was left off the team for 1991-92. On the other hand, he said, "I sort of feel as if she slowed down our growth a little bit in terms of that side of teaming [interdisciplinary experiences]," since her curriculum asserted such strong demands that she wouldn't consider curricular integration. The right composition of a group of planners for T8 meant a compatibility of planning practices, a common understanding of interdisciplinarity as one purpose of teaming, and the willingness and ability to enter into collaborative relations.
focused on creating interdisciplinary experiences.

Organizational Support: Availability of Training and Assistance

The team experienced limited training for its task of planning interdisciplinary experiences, but did not appear to suffer because of this. Hackman and Oldham (1980) contend that "Too often self-managing work groups are formed, given a large and complex task to perform, and then left to 'work things out' on their own" (p. 196). For the most part, T8 was left to work things out on its own.

Some training was provided at the district and school level that conceivably might have helped T8 in planning interdisciplinary experiences. For example, the school district's professional development alternatives in February included a session on models of integration. The team members attended this session, and they cited it as having influenced how they conceived of interdisciplinarity. A follow-up session with the same consultant in April strengthened this conception of interdisciplinarity.

At the school level, each year Waterfront put on a middle school conference, and in 1991, the team attended a workshop on how to plan interdisciplinary units. They reported learning a process of planning at that workshop, though none of them found it valuable, and they did not use the process in their planning. Indeed, Trent characterized the approach to curricular integration (interdisciplinary thematic units) they learned there as unimpressive: "I think all the emphasis in that kind of approach goes into the reporting and probably not enough into the building blocks. . . . It's too much dress up."

Training, then, was offered the team, though the teachers did not find it valuable. Perhaps the training was misdirected. The focus of the training for
this team was on technical matters: a planning process and models of integration. Yet these matters did not match the needs of the team, which found the planning process unusable and the models of integration generally not relevant to their work. McGrath (1984) notes that enhancing task skills at which members already have competence is not helpful. More important than training (they were all competent planners), the school might have provided assistance to the team.

What the team most often cited as their need for assistance was simply more time to meet together. Even this, however, was not as clear an issue as one might expect. The team had available 20 released days through a grant from the Ministry of Education to develop an integrated unit, but through most of the school year, they resisted using these days due to the complexities of leaving their classes (i.e., disruptions to the continuity of class, difficulties in arranging substitutes, paperwork upon their return). Catherine strongly expressed the need for more time to meet; she also said, "We all find it so onerous and worrisome to leave our classes this year." The data suggest that the school as an organization might have provided assistance to the team by arranging more time for them to meet, but in ways that did not compound their classroom work.

A second form of assistance has already been discussed: assisting the team in weighting members' input. The central place of team dialogues in creating interdisciplinary experiences stresses the importance of dialoguing. Yet the data indicate an imbalance of participation in these dialogues. Assisting the team in learning this balance may have enhanced the dialogues.

Finally, team members expressed concern about not following up on ideas or working out the details of planning interdisciplinary experiences. Again, the school might have offered assistance in this area. Especially since planning is
largely mental, team members may need help in learning to adjust to the intermental demands of collaborative planning. For example, while team dialogues effectively generated ideas for interdisciplinary experiences, their follow-up strategies might have been enhanced by assistance through tested methods such as diagnosis and feedback, outside consultants on the process, or redesigning their conception of the task of planning (Cummings, 1981, citing Hackman & Morris, 1975). With assistance, the teachers might have learned to articulate those aspects of planning that customarily remained mental, providing other team members access to their ideas.

Organizational Support: Clarity of Task Requirements and Constraints

Hackman and Oldham (1980) contend that work groups suffer if the task they face is not clearly outlined: "If task requirements and constraints are obscure, then the group will be handicapped in developing uniquely appropriate performance strategies" (p. 198). The data in this study raise questions about this element of the Hackman and Oldham model.

Teaching is rife with uncertainties (Ahston & Webb, 1986; Huberman, 1983; Lortie, 1975). When the team members spoke of their collaboration in creating interdisciplinary experiences, this uncertainty was apparent. Social benefits of creating interdisciplinary experiences intermingled with cognitive and affective intentions. Elements of rewarding students and varying the school year entered the dialogue alongside epistemic ambitions of demonstrating that "everything is connected." In other words, all the uncertainties of teaching--demands for dealing with whole persons in ways that benefit those persons--carried over into collaborative planning of interdisciplinary experiences. What clarity could have been provided the team? Could the administration, for example, have offered
the team standards to clarify its task? This seems doubtful.

Indeed, the data reveal that some of the most productive dialogues of the team included their own attempts to clarify their task. At a team meeting in May, for example, Trent raised the question, Can we do this? Can we talk about themes? The team's ensuing dialogue explored what their task was, as well as themes and needs of the students, speculating on ways of connecting the two. The March discussion about what form integration might take opened new possibilities for the team in terms of interdisciplinary experiences. In other words, it was the team's efforts to clarify its own task that prompted reflection and insight, contributing to the development of a norm of learning among group members (Cummings, 1981).

The administration did not set requirements (such as a minimum number of interdisciplinary units) or constraints (such as no field trips) for the team. The principal described his role as "stoking the fire" for the team's activities. He said, "I have absolutely no plans to walk in and say this is the way we should go." This neglect of requirements and constraints did not appear to generate handicaps for the team, in contrast to what the Hackman and Oldham model would suggest. Perhaps the uncertainties of teaching, no less indefinite in the teaming context, explain why the team was not handicapped by this situation. Perhaps the opportunities to dialogue about such uncertainties offered this team more significant support than setting task requirements and constraints. The conclusion, based on T8's experience, is that a team committed to creating interdisciplinary experiences can function effectively without clearly articulated task requirements and constraints.

Summary

The impact of the school on T8's collaborative planning of interdisciplinary
experiences was examined in light of the Hackman and Oldham (1980) model of group effectiveness. In contrast to what the model suggests, T8 appeared to work effectively despite a lack of organizational support. The benefits of collaborative relations to team members were suggested as an explanation for why the team pursued its work despite organizational indifference.

Chapter Summary

Data from the case study of a middle school team's collaborative planning of interdisciplinary experiences were presented in this chapter. The following major findings were reported:

• The teachers demonstrated differences in their planning practices, but compatibility as a planning team based on their balance of homogeneity and heterogeneity (Hackman & Oldham, 1980). They did not attempt to make their planning practices conform to one another.

• The unit was the level of planning at which teachers collaborated in planning and discussing interdisciplinary experiences.

• The team recognized multiple purposes for teaming that were not in competition, but overlapped one another, with no particular priority accorded to the creation of interdisciplinary experiences.

• The team members developed a common conception of interdisciplinarity: "integration by allusion," with a focus on common learning processes, became the team's consensual approach to interdisciplinarity.

• In long-term (yearly) collaborative planning, the team focused on common themes.

• Team members saw opportunities to integrate their curricula as meaningful if content and/or intent relevance was high, demonstrated by an implicit Interdisciplinary Judgment Matrix.

• The team did not adopt any established process of planning interdisciplinary experiences. Rather, the team's process involved one teacher's initiation followed by dialoguing on teachers' unit work.
• A major planning concern of the team was the possibility ofisolating themselves and their students from the rest of the school by engaging in interdisciplinary experiences.

• Low levels of organizational support did not prevent the planning of interdisciplinary experiences.

Throughout the presentation of data, the Hackman and Oldham (1980) model of group effectiveness was used as a device to examine the work of the team. The model provided a useful way of conceptualizing the team's work in creating interdisciplinary experiences. Based on the team's success despite low levels of organizational support, a modification of the model for the interdisciplinary teaching team was suggested.
Chapter 6
CONCLUSIONS AND IMPLICATIONS

This case study described and analyzed how a team of middle school teachers from different subject areas collaboratively planned interdisciplinary experiences. The exploratory questions of the study focused on how the differences among the teachers as planners interacted, what conceptions of interdisciplinarity and purposes of teaming the teachers demonstrated, why they decided to engage in interdisciplinary experiences, what process of planning they used, what planning concerns arose in their collaboration, and the impact of the school on their work together.

This final chapter summarizes the major findings of the study, with discussion about the conclusions I draw from such findings. Limitations of the findings are addressed. Implications of the study for practitioners and researchers form the focus of the conclusion.

Findings and Discussion

Teacher Planning

Unit Planning and Interdisciplinary Collaboration

Finding: Unit planning was the most important level of planning both for individual teachers and for their collaborative planning of interdisciplinary experiences, even though teachers planned autonomously.

Discussion: Unit planning was, for these teachers, the primary level at which they articulated their plans and the level at which they conducted the dialogues about interdisciplinary experiences. At their meetings, the teachers opened dialogues by explaining the "flow" of their units and the current state of
their unit work. Thus, unit planning became a key factor in the team discussions of interdisciplinary experiences. Teachers adapted established units to make connections with other subject areas. Furthermore, in their long-term planning, themes were considered in light of established and potential units in each class.

As with other levels of planning, the team made no attempts to develop a unified approach to unit planning. This guaranteed the teachers' autonomy in planning units; at the same time, their autonomy precluded the creation of a coherent, clearly articulated "interdisciplinary thematic unit." This finding suggests that the emphasis in middle school discourse on the interdisciplinary thematic unit is misplaced. Presented as the pinnacle of interdisciplinary teaming, the interdisciplinary thematic unit has not been examined in relation to the ongoing unit planning team teachers engage in. For all its unity and cohesion, the interdisciplinary thematic unit still threatens to be an isolated "curriculum way-station" (Capelluti & Brazee, 1992). This study suggests that rather than creating model interdisciplinary thematic units, middle school teachers might more productively bring interdisciplinary perspectives to the units they plan. The teachers of T8 did so through dialogues based on the unit work each teacher planned and conducted.

**Differences among Teachers as Planners**

*Finding:* Teachers had different styles and techniques of planning, but these differences did not impede their ability to plan collaboratively.

*Discussion:* The Hackman and Oldham (1980) model indicates that effective group composition requires a balance of heterogeneity and homogeneity. This study suggests that different planning styles, whether at the yearly, unit, or daily level, can contribute to a workable group composition. Having developed a
common understanding of interdisciplinarity and a commitment to interdisciplinary work (homogeneity), the teachers' heterogeneous planning styles allowed them to create interdisciplinary experiences that harmonized with each teacher's approach to instruction. In my view, any attempt to eliminate these differences would be misdirected: training these teachers in a common technique of planning (such as the rational, means-end approach) would not improve the group composition. Indeed, such a possibility risks diminishing the heterogeneity that enhances group performance (Hackman & Oldham, 1980).

Because of the teachers' autonomy in planning, the various influences on their planning did not come into conflict in collaborative planning. For example, that one teacher considered objectives quite explicitly in designing units did not hinder collaboration with teachers who did not specify objectives. Neither did this persuade the other team members to specify objectives in their individual or team planning. A common perspective on the importance of objectives in planning was unimportant; indeed, despite the pervasiveness and centrality of objectives in prescriptive approaches to teacher planning, objectives did not constitute a common ground for these teachers. It seems that the routines of planning the teachers brought to the collaborative planning situation survived. While the possibility of growth existed--teachers did report learning about planning from their work together--the basis for the team's collaboration was a mutual recognition of each teacher's planning expertise and autonomy.

Planning Process: Dialoguing

Finding: The team did not follow an established procedure for planning interdisciplinary experiences; rather, the teachers engaged in dialogues about their teaching and subject areas. These dialogues enriched the teachers' subject areas and revealed connections on which to build interdisciplinary experiences.
Discussion: The implication of published models for planning interdisciplinary units (see pp. 61-62) is that the problem of creating interdisciplinary experiences is merely technical. That is, if a team were to have the right set of steps to follow, it could successfully create such experiences. Or worse, a team could be given a pre-packaged interdisciplinary thematic unit and merely implement it. This study suggests a conflicting viewpoint. The creation of interdisciplinary experiences was not a technical problem; rather it was a matter of intellectual positioning, finding a place for one's subject matter and subject specialist's concerns. These teachers were not implementors of a procedure or a packaged unit; they were professionals who reflected on their teaching and their subject areas to determine what sorts of interdisciplinary connections would be meaningful in their teaching.

Such a view of teachers calls for a re-thinking of expectations about interdisciplinary thematic units or curricular integration. Identifying a procedure to accomplish these goals is unlikely to be effective. Instead, what this study suggests is that teachers be given opportunities for ongoing dialogues about their subject areas and teaching and learning. While such dialogues may be less likely to produce tightly structured units, they may be more likely to encourage meaningful, day-to-day connections between subject areas. Such dialogues, it appears, also offer the possibility of enriching teachers' understanding of their own subject areas.

The interdisciplinary aspect of this middle school team encouraged dialoguing. The teachers reported a sense of comfort in talking about matters that might have been awkward in purely discipline-based settings. Bahktin (1981, pp. 342-345) distinguishes between "authoritative discourse," which relies not on persuasion, but the authority of the speaker (e.g., religious and political
discourse, "the word of a father"), and "internally persuasive discourse," which is denied all privilege, depending instead on an individual's affirming or assimilating it. The "authoritative discourse" of the departments, where one's motives and competence in relation to an authoritative curriculum come into question, gave way to "internally persuasive discourse," characterized by a willingness to learn and a sense of wonder at the possibilities of another's discipline.

In this sense, it was not merely the collaboration that benefited these teachers, but the interdisciplinary collaboration. The teachers indicated that similar dialogues would be unlikely in department settings, even if there had been discipline-based teaming. As Trent put it,

It would not be the same in a department meeting where everybody clams up. . . . Comparisons are odious, you know. . . .teachers do not talk to each other as effectively as they might. And one of the joys of our meetings is that there's absolutely no, ah, threat in talking about what you're doing. (Interview, June, 1992)

**Generalizations about Teacher Planning**

**Finding:** The collaborative planning of interdisciplinary experiences made manifest aspects of teacher planning.

**Discussion:** The collaborative context of the team's planning allowed the verbal expression of thought processes in teacher planning. Debates about student interest and motivation, concerns about timing (especially in relation to seasonal events and cyclic patterns) and teaching techniques, and discussion of content occurred in team meetings. As a research technique, observing team planning appears to be a credible way to gain access to teachers' thought processes.
**Finding:** Team planning enhances the supportive role of planning and broadens the instructional context under consideration.

**Discussion:** McCutcheon (1980, 1981) found that teacher planning provided psychological support for teachers. This study indicated that in the context of collaborative planning, that support is social as well as psychological. The uncertainties and anxieties teachers expressed were met with social support and affirmation from team members. Thus, the supportive function of planning was not restricted to a psychological level, but included social support. This suggests that team planning can serve an important professional support role.

Also, in their collaboration, these teachers broadened their instructional contexts to include consideration of current content and activities in team members' classes. The insulation (Bernstein, 1977) between subject areas was reduced by this communication and the resulting plans.

---

**Collaboration**

**Lack of Agenda**

**Finding:** Contrary to recommendations about effective team planning processes, the team's failure to use an agenda permitted dialogues on the substance of their teaching.

**Discussion:** A commonplace of effective team functioning is the recommendation for an agenda to structure team meetings (Bell, 1990; Erb & Doda, 1989; Merenbloom, 1991; Stein, 1978; Whitford & Kyle, 1984). While it is possible that such an agenda may be democratically constructed, Hargreaves (1989) points out that "Fixing the agenda, setting limits beforehand to what will be discussed, is increasingly acknowledged as one of the most important ways that power is exercised through the decision-making process" (p. 43). Not having
for the team meetings, T8 did not experience formal, pre-established limits to their discussions. Indeed, often their most productive dialogues occurred during meetings where there was ostensibly "nothing to talk about."

The lack of an agenda may have made T8's meetings less efficient than they might have been—indeed, this is likely. However, in their commitment to meet, but with "no urgency, no agenda," the teachers talked about what interested them—their subject areas. James Britton (1982) writes that teaching is only bearable so long as it remains remarkably inefficient. In the inefficient dialoguing, in the unstructured discussions where team members could work out the relations among their disciplines rather than focus on the fixed and insulated curricula, new meanings and insights arose. Such inefficiencies—a "sea of talk" (Britton, 1982)—are the stuff of learning and professional growth.

Multiple Purposes of Teaming

Finding: Planning interdisciplinary experiences was one among many overlapping purposes the teachers of T8 recognized for teaming (collaboration), and as such, this activity assumed no higher priority than other purposes.

Discussion: This finding demands a contextualization of the question of the collaborative planning of interdisciplinary experiences. Teaming for these middle school teachers was complex—as complex, uncertain, and multidimensional as the teaching occupation in general (Huberman, 1983). Part of the teachers' understanding of teaming was their work to create interdisciplinary experiences for their students—but only part. To overemphasize the importance of this function would be to ignore the interplay between the various purposes of teaming and to neglect the meanings teachers made of the team experience. The social support the teachers derived from their teaming, for
example, also came about when they worked together on interdisciplinary experiences; their creation of interdisciplinary experiences led, at times, to communicating about their students. The multiple purposes of teaming interacted.

The identification of such teams as "interdisciplinary teams" may create undue expectations by focusing—at least semantically—on only one purpose of teaming. As a result, criticisms of such teams for neglecting the interdisciplinary aspect of their work (e.g., Beane, 1990) gain disproportionate discursive power. Perhaps teachers do not see the issues as clearly demarcated as researchers do. In other words, the multiple purposes of teaming are not distinct, and therefore team energies are always pursuing multiple purposes. To say that a team's discussion of students excluded consideration of the curriculum is to ignore the connections teachers see between student concerns and curriculum. Certainly T8's discussion of student behaviour and their development of an interdisciplinary theme on the importance of the group blurred any such distinction.

At the same time, an acknowledgement of multiple purposes suggests that attention be paid to the balance among them. The team in this study clearly discussed curriculum. Other teams may need encouraging or coaching to bring this purpose of teaming to the level of explicit discussion. What I have termed a disposition to integrate curricula need not be viewed as congenitally determined at the creation of a team. This study suggests that by making time to dialogue about the content of the curricula, teachers can create meaningful interdisciplinary connections.

Organizational Support for Creating Interdisciplinary Experiences

Finding: Low levels of organizational support for the creation of
interdisciplinary experiences did not prevent the team's collaborating to do so.

*Discussion:* The Hackman and Oldham (1980) model specifies organizational support as a key element in a group's success, yet the teachers of T8 successfully planned interdisciplinary experiences despite what they perceived as a serious lack of organizational support (the released time, for example, was provided by the Ministry of Education, not the school). Such a finding implies the Hackman and Oldham model is inappropriate in this domain and/or another variable deserves attention. I suggest that both implications are correct.

While the Hackman and Oldham model works well in identifying issues to consider in group effectiveness, the one deficiency is that it does not account for the potential benefits groups might provide their members. In other words, its task-focused perspective fails to examine how the experience of being in a group might in itself motivate group members. For teachers, with their noted culture of isolation, team membership might provide individuals with satisfaction and relief of loneliness. Certainly the teachers of T8 experienced these benefits. Thus, a non-supportive organization can potentially have the effect of uniting group members, of making their group life all the more important for emotional and social support (see Cummings, 1981). Obviously this does not argue against a supportive organization; it does raise the possibility that lacking that support does not necessarily impede the group's effectiveness.

The other variable to which I referred above is the collaborative relations of the team and the impact of such relations on their effectiveness in planning interdisciplinary experiences.

*Finding:* The team developed supportive collaborative relations through their work together which compensated for lack of organizational support.
Discussion: More than an organizational feature of the school structure, the team of teachers in this study created a collaborative subculture to combat what they perceived as an isolated occupation. The teachers did not feel forced into teaming; indeed, they found themselves acting as ambassadors for teaming at the school, working to preserve the opportunity for themselves. The planning of interdisciplinary experiences provided a focus for the team around which they could build a collaborative subculture.

Concerns about Isolating the Team

Finding: Planning concerns of the team included worries that their joint activities might set their students off from the rest of the school.

Discussion: Developing a team identity has been advocated by middle school theorists (Erb & Doda, 1989; Merenbloom, 1991). The teachers in this study did not actively seek to develop such an identity through identity-building tactics such as devising a team name, a team logo, or other symbols. Indeed, one of the concerns that arose in their collaborative planning of interdisciplinary experiences was how such experiences might isolate their students and themselves from the rest of the school. One team member argued consistently that the identity-building that occurred through interdisciplinary experiences was a positive benefit of their collaboration. In time, the other team members came to agree with this position.

In other words, the consequences of their collaboration became a concern for these teachers. The most successful interdisciplinary experience, in this light, might have the most drastic consequences vis-a-vis the school. This finding raises questions about the context of interdisciplinary experiences. When such experiences constitute a school-wide or grade-wide activity (e.g., the exemplars in
Lipsitz, 1984 and Lounsbury, 1987), the context is not problematic. However, when a single team of a grade or school conducts such activities, whatever the benefits may be, the reverberations at the student and staff level potentially establish a context of controversy. The team in this study was concerned about its possible infringement on the legitimate domain of the school and about the isolation of its students from other grade eight students. While it is unclear whether this concern discouraged them from planning more interdisciplinary experiences, the finding demands that attention be paid to the context in which interdisciplinary teams attempt their collaborative planning.

**Interdisciplinarity**

*Common Conception of Interdisciplinarity*

*Finding:* The team of teachers developed a common conception of interdisciplinarity over the course of the year by working through phases of elusion, inclusion and allusion.

*Discussion:* The teachers did not begin the year with a clear, agreed-upon definition of curricular integration or what constitutes interdisciplinary experiences. Neither did they look to the administration, the Ministry of Education, or outside authorities to define the concept for them, though they actively sought a consultant's validation of their own emerging understanding. Rather, in the course of their work together, they came to a common understanding of what curricular integration means—an understanding that harmonized with the contextual constraints (e.g., subject-specific curriculum guides, lack of materials) they perceived, rather than one that built on, for example, social or epistemological concerns. This understanding was not definitive: teachers expressed doubts, concerns and questions even as they ended the year. However, the significance of this finding lies in the locus of control.
The team jointly constructed a meaning for curricular integration, and so set the terms by which it would consider interdisciplinary experiences.

Hackman (1990) points out that groups develop their own versions of reality and act accordingly. Because of this, Hackman argues managers (principals) should create "contexts that increase the likelihood (but cannot guarantee) that teams will prosper--taking care to leave ample room for groups to develop their own unique behavioral styles and performance strategies" (p. 9). Developing a conception of interdisciplinarity, not receiving someone else's conception, was an important part of the interaction of this interdisciplinary team. Thus, merely following formulaic approaches to creating interdisciplinary thematic units would be likely to skip this important intellectual work.

**Finding:** The long-term planning of the team was based on a different conception of interdisciplinarity (based on themes) than that which guided their immediate short-term work in creating interdisciplinary experiences (based on learning processes).

**Discussion:** Having worked out their conception of "integration by allusion," the team embarked on planning for 1992-93 by discussing themes they could focus on at various points in the year. The shift from a process-based to a theme-based version of interdisciplinary experiences occurred without articulation, without debate, almost without notice. This finding suggests several considerations.

The planning activities associated with long-term planning differ from those of short-term planning (Yinger, 1980). Each teacher separately engaged in yearly planning for 1991-92, but without considering interdisciplinary experiences. When they made interdisciplinary experiences an aspect of their yearly planning
in collaboration (for 1992-93), themes emerged as an important organizational feature. It appears that at different levels of planning, different versions or conceptions of interdisciplinarity assert influence.

A second consideration suggested by this finding is the relevance of content. The teachers of T8 had stressed the difficulty of connecting their content areas, to the point where they challenged the feasibility of content-based curricular integration. With the emergence of themes as the focus of long-term planning, they once again found themselves discussing content and discovering ways to connect their subject areas at this level. Despite the restrictions they associated with content-based curricular integration, it appears that content was an important and viable consideration for collaborative planning of interdisciplinary experiences.

Finally, the teachers' work together in long-term planning demonstrates a degree of "slipperiness" in the concept of curricular integration. Their firmly-held convictions about the proper basis for interdisciplinary connections proved to be elastic. I suggest that this does not denote inconsistency on their part, but the complexity of making meaning of this challenge to the insulated (Bernstein, 1977) structure of the traditional curriculum. "Curricular integration" has the elusiveness of a slogan, and even those who work to clarify the concept will find it slipping, slogan-like, to challenge other areas of their structure.

Why Teachers Created Interdisciplinary Experiences--
The Interdisciplinary Judgment Matrix

Finding: The teachers of T8 decided to create interdisciplinary experiences when such experiences appeared to be meaningful by having high content and/or intent relevance.
Discussion: Deciding whether to participate in an interdisciplinary experience, for these teachers, involved making judgments about the value of such experiences. While a host of factors influenced such decisions (e.g., the need for variety or the desire to reward students), the teachers' decision-making drew primarily on their assessment of relevance to their established curricula (content) and to their notions of what they, as subject specialists, wanted their students to receive from such experiences (intent). The task of planning interdisciplinary experiences became meaningful when such experiences had high enough content or intent relevance, which can be understood through the use of an implicit Interdisciplinary Judgment Matrix.

This finding presents teachers as reflective practitioners (Schön, 1983), not merely implementors of pre-established curricula. Teachers make judgments, and to do so, they must be accorded the professional space to allow such decision-making. An inflexible, "teacher-proof" curriculum, whether single-subject or built to integrate subjects, would deny these teachers the opportunity to make decisions.

Deciding about relevance was not a simple yes/no decision. The teachers engaged in dialogues that helped them decide whether or not to plan interdisciplinary experiences. Understanding the basis of these dialogues—content and intent relevance, as indicated in the Interdisciplinary Judgment Matrix—offers a common ground for teams, a potential empathy that might be lost if the drive to create interdisciplinary experiences is not tempered by the acknowledgement of each teacher's perceived obligations.

Ongoing dialogue promised professional growth and personal satisfaction for these teachers. The search for meaningful interdisciplinary experiences involved dialogues arising from each teacher's understanding of his or her
obligations to a curriculum and to the specialist expectations of a subject area.

Limitations of the Findings

The findings of case studies are not generalizable to a specific population, but must be judged by readers to be transferable to their concerns by the degree of "fittingness" (Lincoln & Guba, 1985) to the context of interest. To this end, I have endeavoured to portray clearly the context of this case study.

Implications for Theory

The findings of this case study have implications for theory at two levels: the application of the Hackman and Oldham (1980) model of group effectiveness to interdisciplinary middle school teams and the characterization of school culture as collaborative (Little, 1982, 1990b).

The Hackman and Oldham (1980) model of group effectiveness proved to be a useful heuristic for examining a middle school team as it created interdisciplinary experiences, and promises to be helpful in improving team performance. Two features of this theory of group effectiveness were questioned, based on the findings of this study, suggesting some modification of the theory for middle schools. First, the model's emphasis on a supportive organizational context did not predict this team's success in planning interdisciplinary experiences. With little support and no clarification of task requirements and constraints, the team still made efforts to create interdisciplinary experiences. Instead of the factors specified in Hackman and Oldham, the social support and relief of isolation offered by the team experience were seen as offsetting the lack of organizational support. Second, the model was found to be insufficient in
examining the group's relationships with those outside of it. Ancona and Caldwell's (1988) notion of "boundary spanning" activity was offered as a supplement to the Hackman and Oldham model for understanding this dimension of a middle school team's interactions.

This case study also raised questions about Little's (1990b) conception of school cultures as manifesting a degree of "collaborative" relationships. In Little's theory, a school culture can be characterized as collaborative to varying degrees. The findings in this study demonstrate that highly collaborative groups can exist in otherwise less collaborative cultures. Indeed, it seems likely that the existence of highly collaborative independent groups would tend to reduce the degree of collaboration more generally in the school. Characterizing the degree of collaboration of a school, then, is problematic.

Implications for Practitioners

At the Middle School Level

Interdisciplinary teams at the middle school level are faced with multiple purposes and no clear direction for how these purposes interact. Based on this study, I recommend that such teams carefully and deliberately discuss the purposes of their teaming. It is not enough merely to accede to the rhetoric of the movement; teachers must jointly construct the meaning they will make of their teaming. To evade this issue is to consign teaming to organizational flow charts and public relations, without influencing the work of teaching. Clearly this recommendation requires that teams be given time to hold such discussions.

In their collaborative planning of interdisciplinary experiences, middle school teams should reconceptualize their work to dethrone the interdisciplinary thematic unit. Given its present status in middle school literature, this will be a
difficult task. Nevertheless, this study highlights the importance of bringing interdisciplinarity to the normal unit planning of subject specialists. Such an approach lacks the showiness of the interdisciplinary thematic unit, but makes the reputed goal of such units practicable. That is, by engaging in consistent, ongoing dialogues about their subject areas, teemed teachers can connect their subject areas in the day-to-day activities of their classrooms. Short of eliminating the separate-subject structure of middle schools altogether, this offers the best hope of leading students to see the relations between what they may perceive as fragmented areas of knowledge.

I had hoped at the outset of this study to be able to recommend the definitive process for effectively planning interdisciplinary experiences. I now think such a recommendation would contradict the nature of the true work in question. Middle school teams do not need a technique to plan interdisciplinary experiences. Middle school teachers, like the members of T8, will have developed their own styles and techniques of planning which can coexist comfortably in the team. The necessary shift for middle school teams is from the technical to the intellectual. Teams must dialogue about their subject areas, their students, and the relations among them. Hard-pressed for time, beset with paperwork and extra duties, such dialogues will seem remarkably inefficient to many teachers. However, it is in such intellectual dialogues that the connections among subject areas will arise. This implies a need for team members to commit to meeting and discussing apart from accomplishing the business typically associated with an agenda. Team meetings, reconceptualized as dialogues about subject areas, promise a starting point for blurring the boundaries between the so-called fragmented and insulated curricular areas.

For middle school administrators, this study underlines the importance of
creating conditions that permit effective teaming. If teachers are to plan interdisciplinary experiences, they need time to dialogue. They do not need to be given standards or expectations for the interdisciplinary experiences, since such prescriptive boundaries would circumvent their developing conceptions and expectations on their own. The study does suggest that providing teams with time and opportunities to talk will enhance their collaborative planning of interdisciplinary experiences.

More important, this study suggests that the work teams engage in when they plan interdisciplinary experiences goes beyond business as usual: it is a potential means of professional development. Little's (1990a) conceptualization of professional development as including the classroom identity but also the organizational and occupational identity of the teacher implies a need for more than occasional workshops. The ongoing collaboration among different subject specialists promises opportunities for professional growth built into the work of teaching.

Curriculum developers can learn from this study as well. The funding provided by the Ministry of Education provided time for fruitful discussions among the team members, but only when they employed the time to suit their purposes. In fact, the constraints of the grant-writing process may be seen to have a negative impact: the team's first venture into integrated curricula (the Renaissance Unit) started a negative spiral (Hackman, 1990) for team members, providing them with a model of how not to integrate. Again, focus on the product (an integrated unit) rather than on the process (teachers dialoguing about their subject areas) is misguided.

Finally, educators of middle school teachers should heed the implications of this study. The debate over specialist (Lipsitz, 1984) versus generalist (Hargreaves, 1986) teachers for the middle school level seems to miss the point.
Whether generalist or specialist, the teacher experiences the demands of the curriculum and of the traditions and expectations of subject specialism in a separate-subject school structure. Teacher educators can help prepare middle school professionals by emphasizing the learning aspects of the teaching role. In other words, rather than preparing experts to dispense information in English or science or social studies, teacher educators should, without diminishing any of that expertise, prepare professionals willing to explore English and science and social studies and a host of other subjects for ways to make meaningful dialogues and connections. In preparing middle school teachers to seek the relationships among subjects, rather than the boundaries between them, teacher educators can empower teachers to plan interdisciplinary experiences for their students. Moreover, this study implies that giving prospective teachers experiences in effective group work might enhance their co-labouring as they learn to dialogue and weight members' input.

*Teachers "Integrating the Curriculum"

This study also has implications for teachers at levels other than the middle school who are considering or who have been directed to "integrate the curriculum."

Defining or conceptualizing what "integration" means to a teacher is a crucial aspect of creating interdisciplinary experiences. Teachers must be provided opportunities and, perhaps, stimuli, to discuss and define the idea rather than merely asked to implement it.

While some models of curricular integration propose the virtuoso accomplishment of this goal by isolated subject-area teachers at the secondary level, this study suggests that many of the benefits of curricular integration
would be lost in this approach. Making connections for the students is only part of the issue, and one might argue that to make such connections without addressing the fragmented structure of secondary schools is incomplete (see Goodson, 1988). Curricular integration also means growth for the teachers as they collaboratively focus their energies on a joint task. The fragmentation of knowledge is interwoven with the fragmentation of people. This study suggests that serious attempts to integrate curricula will require serious discussion across the disciplinary boundaries.

Implications for Further Research

As a study of teacher planning, this case study raises implications for further research in this area.

1) The focus of the team's work on unit planning implies an accessibility here that may be missing at other levels of planning. Researchers might profitably explore through further case studies, perhaps among disciplinary as opposed to interdisciplinary groups, the role of unit planning as the common discourse for collaborative planning. Does the "unit"--for all its semantic persuasiveness--constitute the unit by which teachers think about their teaching?

2) The complete neglect of term and weekly planning by these teachers suggests a re-examination of these levels of planning. In particular, does the use of block rotations, as opposed to the same daily and weekly schedule, alter teachers' thinking about these levels of planning? Such a question suggests a comparative study.

3) The team in this study did not use any established models of planning interdisciplinary experiences. Future researchers might seek out teams
committed to using established planning models for the purpose of comparing the experiences of teams in both situations.

This study also implies further research into the area of collaboration:

4) What is the relationship between collaborative subcultures and the culture of the school at large? Is it possible that powerfully collaborative subcultures prevent the development of a more generally collaborative organization? What benefits might "pockets" of collaboration offer teachers in terms of relief from isolation? This study suggests that researchers get beyond characterizing a school as exemplifying a given degree of collaboration or collegiality and investigate the interplay of individuals and groups in contributing to collaborative interactions.

The question of interdisciplinarity implies further research questions:

5) The team in this study developed a conception of interdisciplinarity; what impact might other conceptions entail? How does coaching or consulting a team have impact on their development of understandings? Does the different conception of interdisciplinarity in long-term planning compared to short-term planning arise from the nature of the planning activities or from the experience of a given team? These questions suggest a comparative study of other teams as they work out meanings for interdisciplinary experiences.

6) This team's interdisciplinary makeup established an environment that encouraged dialogue. Does such dialoguing occur in disciplinary teams or other arrangements?

7) What differences might students realize in experiencing different conceptions of interdisciplinarity? How do students see "integration by allusion" as opposed to the "interdisciplinary thematic unit"? This suggests an altering of
the research perspective to explore the meanings students make of interdisciplinary experiences.

Most important, this case study suggests a general alteration of researchers' perspectives: criticism of middle school teams for neglecting interdisciplinary work may rely too much on researcher-imposed definitions of interdisciplinarity and not enough on the understandings of practicing teachers.

Conclusion

Interdisciplinary teams can be more than an organizational characteristic of middle schools. Given the time and the understanding of their importance, middle school teams can plan interdisciplinary experiences for their students that begin to combat the fragmented structure the middle school has inherited. The message of this study, however, is that it is not in the showcase event known as the interdisciplinary thematic unit that meaningful connections reside. Rather, through ongoing dialogue in a collaborative relationship, teachers learn from each other ways to make their subjects connect to other areas.
Notes

Chapter 1

1 Members of the Association for Supervision and Curriculum Development National Polling Panel (U.S.) identified curricular integration as the number one curricular issue in 1988 (Jacobs, 1989). The Middle School Journal (1987, p. 3) has declared the interdisciplinary team "the most frequently cited characteristic of the modern middle school." The high profile of curricular integration in state (Shoemaker, 1989) and provincial (British Columbia, 1990b) documents and national journals (see Educational Leadership 49 (2), October, 1991) corroborates this interest more generally.

2 Trent, at times, spoke of differences between these two concepts. However, he and the other team members generally took curriculum integration to mean bringing their various disciplines together on given issues.

Chapter 2

1 The distinction between interdisciplinary and integrated has been made by Pring (1973) and others (see Kain, in press a). Based on observations of teachers and such documents as British Columbia (1990a), I take interdisciplinary and integrated curriculum to be roughly equivalent.

Chapter 4

1 The team did not devise a name for itself, nor did the administration refer to the team by a name. The use of "T8" is my designation, employed only to facilitate making references to the team in this document.
Chapter 5

1Jeremy's sharing about a "watchdog" for a lesson led Catherine to try the same thing in her class. When Catherine showed the team how she had structured a categorizing lesson associated with the problem-solving unit, her report was received with interest, but the others did not use her technique.

2Jeremy and Catherine each reflected on other forms of curricular integration they had experienced. In both cases, the integration involved science content and English writing instruction, though they had not worked together. Interestingly, one of Jeremy's experiences involved his students using their work on the digestive system in conjunction with an English teacher's work on descriptive writing. Catherine's experience involved her students using expository writing skills in conjunction with the same science content. The flexibility of making connections appears quite vividly in this example.

3Supplied with released time by a grant from the Ministry of Education for site development of Year 2000 innovations (British Columbia, 1990b), the team members met for planning purposes on several days. On April 9, 1992, they met for a half day after a workshop session with a consultant specializing in curricular integration. They met again for most or all of the day on May 25, June 4, and June 11, 1992, and I was present at each of these meetings as a participant observer.

4Portions of this analysis appear in Research in Middle Level Education (Kain, in press b), including the diagrams of the Interdisciplinary Judgment Matrix.

5By way of counterevidence, I should point out that Trent, for example, did make the distinction between content and skills or processes: "So when I plan a lesson, I'm thinking content in terms of its appeal, and I'm thinking process, because that's what's important." However, what he meant by "process" did not
refer to the processes identified by the curriculum guide; rather, he indicated something more like what I have called specialist's intent.

6In response to the question, team members explained their shift in thinking from the interdisciplinary thematic unit (the Renaissance Unit) to what they considered smaller, more effective units, including the idea that "Your participation can be by allusion" (Trent).

7I found Little's (1990b) continuum of collaborative relations difficult to apply to the team activities. Essentially, I attempted to characterize interactions in terms of the four levels of collaboration. The boundaries between levels, however, are not distinct. Furthermore, Little characterizes a school culture as being at a certain level, while I found examples of all four levels throughout the dealings of the team. To characterize the subculture of this team as a clear example of one level of collaboration would require overlooking the numerous instances of other levels. For the purposes of this study, I operationalized Little's four levels of collaboration in the following manner (capitals indicate the metaphor I used to help clarify distinctions):

**Storytelling and scanning:** opportunistic, autonomous. Occurs under conditions of nearly complete independence. Operationalized: interactions that require no response; on the order of 'did you hear what X did?' or 'can you believe Y?' No follow-through is expected or achieved. (Though conversational replies may occur and one story may spark another.) Or—the formalistic reporting of information, such as a meeting with a district specialist or the principal. It is given almost like an announcement. (TELEGRAM or ANNOUNCEMENT)

**Aid and assistance:** "In cursory or infrequent exchanges, teachers may offer reassurance that serves only to confirm present practice without evaluating its
worth. They may supply sympathy of the sort that dissuades teachers from the kind of closer analysis of practice that might yield solutions to recurrent problems" (Little, 1990b, p. 517). Operationalized: The problem/issue lies essentially in one teacher's domain. There is an asking for or offering of advice, as in 'why don't you try X?', or an expression of sympathy and support, as in 'that's too bad.' The problem is not shared. (ADVICE COLUMN)

**Sharing:** "The routine sharing of materials and methods or the open exchange of ideas and opinions . . . . By making the ordinary materials of their work accessible to one another, teachers expose their ideas and intentions to others" (Little, 1990b, p. 518). Unlike advice-giving, which is fragmented, widespread sharing reveals the pattern of choices in curriculum and instruction. Operationalized: Routinized means the reporting of work/activities is in the context of what is happening in class now or in the future (as opposed to an isolated incident). 'How do you handle X in your class?' 'What works well?' Teachers honestly express their opinions and beliefs, revealing their practices. Self-revelatory. (PERSONAL LETTER IN ONGOING CORRESPONDENCE).

**Joint work:** "Encounters among teachers that rest on shared responsibility for the work of teaching (interdependence), collective conceptions of autonomy, support for teachers' initiative and leadership with regard to professional practice, and group affiliations grounded in professional work" (p. 519). This is collective action: "teachers' decisions to pursue a single course of action in concert or, alternatively, to decide on a set of basic priorities that in turn guide the independent choices of individual teachers" (p. 519). Operationalized: When problems/issues belong to the team; when planning is for team activities or decisions. 'What should we do?' (Key word is we). (TRIBAL COUNCIL).
Bibliography


Bettenhausen, K.L. (1991). Five years of groups research: What we have learned and what needs to be addressed. *Journal of Management* 17 (2), 345-381.


Erickson, F. (1986). Qualitative methods in research on teaching. In M.C. Wittrock (Ed.), *Handbook of research on teaching* (3rd Ed.) (pp. 119-161). New York: Macmillan.


Kain, D.L. (in press b). Deciding to integrate curricula: Judgments about holding and stretching. Research in Middle Level Education.


Marin, P.M. (1988). *Collaboration in elementary science teaching: A case study*


Appendix A:  
Revised: August, 1991

**WATERFRONT TIMETABLE AND BELL SCHEDULE - 1991-92**

<table>
<thead>
<tr>
<th>DAY</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:40 Warning Bell</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>09:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>08:45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>09:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>09:05</td>
<td>A</td>
<td>G</td>
<td>E</td>
<td>C</td>
</tr>
<tr>
<td>09:50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>09:55</td>
<td>B</td>
<td>H</td>
<td>F</td>
<td>D</td>
</tr>
<tr>
<td>10:40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:55</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1:10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1:15</td>
<td>E/F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:05</td>
<td>E/F</td>
<td>C/D</td>
<td>A/B</td>
<td>G/H</td>
</tr>
<tr>
<td>2:10</td>
<td>F/E</td>
<td>D/C</td>
<td>B/A</td>
<td>H/G</td>
</tr>
</tbody>
</table>

1. Period length 45 minutes. (excepting fifth period = 15+35=50)
2. 40 minute lunch - 2 supervision periods 20 min. each
3. 15 minute Advisor/Advisee periods each day.
4. Silent reading period is the first 15 minutes of the first period in the afternoon.

5. **EARLY DISMISSAL SCHEDULE**
   - Warning Bell 12:50
   - Period 1 12:55 - 1:25
   - Period 2 1:30 - 2:00
Appendix B: Sample of Documents File

Document: Writing analysis
Date: 12/18/91

Source: Catherine
File no. 34

Event of document: Observation and discussion of evaluating.

Significance of document:
Catherine is implementing ideas from NCTE conference. Catherine says she used for their creative writing.

Summary of contents:
Name info; chart of quality of ideas, expression, structure, mechanics.

Alert: Writing evaluation

Document: Feudal Contract
Date: 1/10/92

Source: Trent
File no. 39

Event of document: Students doing same work; Trent used this as a model.

Significance of document:
Shows the change in use of materials based on what Trent felt was appropriate.

Summary of contents:
Written two years earlier by an ESL student, it uses places in the city for feudal contract.

Alert: Feudal contract; student sample.
Appendix C: Sample Fieldnotes (from November 20, 1991)

As I walked to Trent's room, I noted the apparent permanence of teaching staff, demonstrated by the plaques on each door. Teachers have their names on those plastic-looking, but relatively expensive plaques, even though many of them share rooms and a couple of the names I saw are for first-year teachers.

TEAM MEETING
(E Block, Catherine's room)
Catherine & Trent are informally discussing a letter from the principal regarding the Remembrance Day Ceremony. They had each received personal notes that seemed appropriate, but they both complained about the notes sent to student participants. They saw the style as "forced," contrived. I later saw the letter, and, indeed, it was not at all the sort of thing a student would appreciate, implying a different purpose to the writing.
Trent mentioned that the principal had sent an interim report back to Jeremy for
corrections. At this point Jeremy walked in and Trent said he was just telling about the interim. I didn't notice any embarrassed reaction from J., though I would have expected some.

Jeremy spoke of a student questioning the fairness of another student's being suspended for bringing The Joy of Sex to silent reading.

Catherine: "OK. Let's meet."

Trent: asks J. if he has a lodestone. Wants to build a compass from a lodestone. Asks J. if he could take 5-10 minutes to do so.

Jeremy: "Yeah, I guess I can."

Trent & Jeremy are combining classes to show The Vikings. Jeremy asks, "are we still on?"

Trent: Yes. "you bet" "We are really watching it for material--the culture material." Trent explains how he used C. E's class to teach the unit on the Vikings.

[The approach was for CE's kids to make the same sort of museum display as T's display on the Anglo-Saxons.] Trent read a story about the Vikings to his students in CE's room, pointing to stuff in the room as
he needed to demonstrate or elaborate.

Trent plans to do several other issues, other levels: use kids' work to teach the content.

Catherine: So what are you doing with the Saxons?

Trent: Basically a culture study.

Understanding is this: early European history is a story of responses to invasions.

This is fundamental to Western Civilization.

Catherine: It's neat.

Trent: "What's neat is CE has never taught grade 8, so I can manipulate him." Then, after he's seen the value there, we can move the approach into the grade 9.

Catherine: Asks about D.H., another socials teacher, and whether Trent is doing the same sort of thing with him.

Trent: Responds that he has "no idea" what DH is doing. [There was clearly a personal dimension to this. Indeed, Trent mentioned having "nothing" to do with him.] "The way I do it is I go tell others what I'm doing" to see what develops. If the other teachers express an interest, the conversation develops and there's a
beginning to sharing. If not, then it stops there.

Catherine: "Do you have any kids you're wondering about, whose marks are really low?" She mentions A E, and both T, J agree there are problems. D---?

Trent: He's OK. Could it be just English?

Catherine: He doesn't show any understanding.

Jeremy: Not strong in science.

Trent: Expresses concern about having too many A's in his classes. "Well, I'm very happy to tell the truth." He feels they are performing well. Though this only represents the "paper" performance. He will include a % of the grade for classroom skills. He and Catherine both express concern about kids with A performances on paper who are very passive in class.

Jeremy: Explains how some students are very good at evaluating presentations [which are the final project for his unit on animal senses]. He uses student "watchdogs". The watchdog sits up near the front, off to the side of the presentation area with a class list. W. keeps track of the listening of others by putting a + or - after a
name for certain kinds of behaviours.

C asks for clarification of how it works.

T says he has taken the criteria for these evaluations and used them in his class with a few additions.

Jeremy: "It's worked really well, so well that I'm using it with labs" for cleanup, on-task behaviour. In a lab, he appoints 2 watchdogs to give marks to peers.

Trent: I mentioned to my classes that this is just what teachers do when they evaluate students.

S "Maybe I'll do that in my reader's workshop." If the rules are not followed, it all falls apart.

Jeremy: Interesting that it's useful to show students diverse feedback. C--- was shown the list and came in the next day and put tape on her mouth. They believe their peers more than just the teacher.

Trent: What about D W?

Jeremy: He had one minus today. At the end of a report, 10-15 hands go up, but kids rarely call on D.

Catherine: It may be good for D W [she said this as though she didn't realize that they}
had been talking about that student.]
Trent: Good for him to see that other kids
see his behaviour, too, rather than just
teachers.
Catherine: He feels picked on.
Trent: I come down on every move he
makes.
Catherine: "I'm gonna do that. [watchdog] I
think it's an excellent idea."
Jeremy: Kids really like being the watchdog.
It's hard to pick who gets the job, because so
many volunteer.
Catherine: Could you "tune in with them"
about my sub for next week?
Jeremy: I decided not to go to the science
conference on Thursday and Friday. Other
teachers are going, and they'll share what
they learn.
Trent: Asks Catherine if she ever
"rationalizes the value of literature."
"Could you give me the criteria you use?"
He discusses how his work is making it
clear that lit is extremely important to
culture.
Catherine: "I'll make this a mini-lesson. I
have talked about it."
Trent: This will be a theme throughout my class; we are constantly referring to evidence from literature.

Catherine: She repeats her intention to do more with this.

Trent: raises a question about the difference in criteria for Chinese literature. He says he is trying to make the same sorts of connections as they did in the Renaissance Unit, but early on.

Catherine: She explains mini-lessons.
Appendix D: Sample Interview (Jeremy)

DK: Hmm. Now you weren't on a team the first year, right?
Jeremy: Ah, right. Yeah, no I wasn't. I was, I was yeah not involved in any team.
It was the first year of the team.
DK: Right.
Jeremy: And they had, well [a French teacher], Catherine, Trent were involved
with that team, and they had a math teacher. And it was really designed, I
don't think they did any kind of integrated learning, you know at that point.
DK: Uh hmm.
Jeremy: It was just an opportunity to, they shared the same students and
discussed strategies relating to students.
DK: Did you have a choice then to get onto the team?
Jeremy: Yeah, I had a choice, I had a choice at the end of that first year. Uhm, it
was, it was discovered that the math teacher was going to go down to [the
secondary school] to teach, and so, they were looking to have another person
come on their team, and Trent and I were car-pooling at that time, so we
decided to, you know he asked if I was interested and I thought, you know, it
sounded like a good opportunity to, to ah, you know share some some, to have
that structured time to actually talk with some other teachers about students
and whatever it involved. We had, at the ah, one of the middle school
conferences we had they had talked a little bit about teaming. You know, and
so I saw it more in terms of what you could do with the integrated approach.
You know that, that type of thing was quite interesting to me.
DK: Uh hmm.
Jeremy: You know, it was also helpful to have a set of students that I shared with
other people and could talk to, but I'm you know one of my main goals is to be able to to do some of the integration on the on the team. And you know I realize that's gonna take a while, you know, and we'll just have to let those times happen when they do.

DK: Uh hmm.

Jeremy: But, but that's that's what I'm looking forward to.

DK: Uh hmm. Have you felt like there's been progress in the last couple years for you?

Jeremy: Ah, yeah, this is my second year,

DK: Oh, this is the second year?

Jeremy: For me, yeah.

DK: Okay.

Jeremy: I, I sort of felt like we got kicked back a couple of places from last year because of, well several reasons. One was that we lost [the French teacher] and

DK: She was French, right?

Jeremy: Right. Ah, I'm not really sure how that affected me. I didn't, [she] made it pretty clear she wasn't that interested in doing any kind of integration so I didn't really miss her in that sense. But she had some very insightful comments and ideas about students.

DK: Uh hmm.

Jeremy: You know and that was quite helpful. And she was very supportive, you know, in terms of if one of us was having some problem with a student then, you know she would really come on full

DK: Uh hmm.

Jeremy: full steam ahead to help out. Ah, yeah, so that was one thing. And, you know, I realized that she had sort of elected to not be part of the team. She
could have, she could have been on the team this year. But it would have, because they're piloting this new program, it would have thrown some curves in that. Ah, the fact that they didn't, they didn't put on another person onto our team was not too important. I was more, it bothered me more that they didn't really discuss at all what, 'they' being the administration,

DK: Uh hmm.

Jeremy: discuss what their hopes and that were for the team and didn't really give us any input into what, you know, what should happen with the team. Should we pick up another member or leave it at the three remaining people? And they actually had, I think this was some kind of just timetabling error, but I went in and looked at the master plan for what people were teaching, and Catherine wasn't blocked in to work with Trent and me. It was J., who's the other English teacher. So I wasn't really you know, I don't know what was happening there. But the kind of subtle message was that you know, the team concept wasn't

DK: Yeah.

Jeremy: foremost in their minds. Which is fine, but it wasn't you know, they were overlooking some things. And then just to set it up so that it was a four class by three teacher team, that's caused some problems that we've talked about

DK: Yeah.

Jeremy: with you know pulling out classes to, to do other things outside of the school.

DK: Uh hmm.

Jeremy: Yeah, but no it's, other than that, ah, Trent, you know it's worked out well in that Trent and Catherine and I have just kind of been able to continue
along and there hasn't been any, you know, we haven't had to bring someone new in.

DK: Uh hmm.

Jeremy: Some new personality that might disrupt our our.

DK: You know, when you discovered that error, or what you perceived as the error with Catherine,

Jeremy: Uh hmm.

DK: Did you point that out? Did you do something about that?

Jeremy: Yeah. I told Catherine because, ah, you know I wanted to find out if she knew about it.

DK: Uh hmm.

Jeremy: If she had maybe elected to not be part of the team. She was quite upset about that, so she went right away to the administration and it was cleared up in, you know, that day.

DK: Just a mistake?

Jeremy: Yeah. It was just a, I don't know, oversight or whatever.

DK: Yeah.

Jeremy: But. Yeah. I, I feel, I don't know a lot of the staff really well, but I really like working with Catherine and Trent. They're very sensitive to you know, these types of concerns, and quite supportive and, you know

DK: Uh hmm.

Jeremy: working things through with students. You know, I've seen Trent teach a little bit, and, you know, I like how he operates. He really does treat the kids as, as adults.

DK: Uh hmm.

Jeremy: And you know, as long as people are not completely out of line or anything, you know he doesn't play the authoritarian figure.
DK: Right.

Jeremy: I haven't seen Catherine, but I would assume she's probably the same way. But, yeah.

DK: So what do you see then as the chief functions for you of being on the team? Or excuse me, the chief functions of the team itself?

Jeremy: Ah, I guess the chief functions. One is to share experience and knowledge about students and groups of students on our team, you know, amongst, amongst teachers. Uhm, to come up with strategies for dealing with any problems, you know, amongst those students.

DK: Uh hmm.

Jeremy: Ah, to ah, to be aware of, ah, what the students are doing in these other classes. You know, that information, it seems so trivial to know what a kid's doing in English

DK: Uh hmm.

Jeremy: but I think it's quite powerful when you can bring something up and it might not be to the class, but maybe to a specific student, you know to be able to commend a student on on a socials project or whatever.

DK: Uh hmm.

Jeremy: You know, it, it I think let's the students see that you're a little more interested in what they're about than just you know the subject that you're working with them on.

DK: Uh hmm.

Jeremy: Uhm, it's ah, definitely a support group for, for the team members. Mmmm, what else? Uhm, an opportunity to ah, that one function would be that the team can allow presentations that on a larger level than you know, a classroom level. Like that Vietnam presentation
DK: Uh hmm.

Jeremy: where it's just not, what would you call it, conducive to the timetable, to say have a speaker come in and repeat

DK: Right.

Jeremy: something three or four times, you know that the team allows that to happen easily just through one

DK: Uh hmm.

Jeremy: you know one time. Or maybe it's, it could be because of the size or it requires you know more than a period more than 45 minutes of time.

DK: Uh hmm.

Jeremy: So we can free up a longer block of time.

DK: How did that work with the fourth block, the block that would have been in math?

Jeremy: Yeah, we just . . .

DK: That work out OK?

Jeremy: Yeah, I , we just put out a flier to the teachers that would be teaching those 120 kids in one of those classes, that you know they were going to be away during A and B block on this afternoon.

DK: Uh hmm.

Jeremy: I didn't do that. I think Catherine did, but I don't, didn't hear about any problems related to that.

DK: Uh hmm.

Jeremy: Ah, a French teacher, I think B.C., said that he had like the majority of his class absent, you know, to go that. So, could the rest of them take part in it? You know, and that's no problem.

DK: Uh hmm.
Jeremy: Uhm, yeah, no, I think it worked out all right.

DK: Good.

Jeremy: But it is one of those things that we would have to be aware of how often we do that because you know there's just so many things that disrupt the day on a weekly basis,

DK: Right.

Jeremy: that if we were pulling kids out, you know, once every two weeks even,

DK: Uh hmm.

Jeremy: that would probably be too much. So it does limit us that way. We wouldn't have had to worry about that last year.

DK: Yeah. Of course, it's pretty late in October

Jeremy: Yeah. [laughs]

DK: So you haven't been pushing the other teachers on that.

Jeremy: Yeah.

DK: At this point anyway.

Jeremy: Yeah, right, right. yeah, I don't know. My feeling is that, that it could happen more often. I mean it's a matter of getting the right, the right situation.

DK: Yeah.

Jeremy: And it's not, I haven't really seen a lot of presenters that that can be effective with a large group of, you know, students that age.

DK: Yeah.

Jeremy: I mean cause they just have a tendency to present it as a, a lecture.

DK: Right.

Jeremy: Like at the university level, and you know, it was quite interesting watching our students. They were just excellent for the first, you know, 45 minutes, almost an hour. And then you started seeing them kind of, you know, getting restless. And still they were not being disruptive or rude, but
you could just see that movement all of a sudden happening. And it was painful to see that and not be able to take over and say 'let's take ten minutes and, you know, go run outside or something'

DK: Uh hmm.

Jeremy: or go to the bathroom. But, ah, they did quite well. They, you know, he didn't let the students be really actively involved in it, which was unfortunate.

DK: Uh hmm.

Jeremy: Ah, but, that was a good experience. I thought the kids handled themselves pretty well. Ah, but, you know, one of, it's one of those things of just finding the right type of person.
Appendix E: Sample Lesson (Trent)

Patterns of Civilization : Chapter 3 Foundations of Medieval Civilization
Part 3 : Life on the Manor ; Pages 50-51

A Self-Sufficient Community

1. To what extent was the feudal manor self-sufficient?

2. Why was it necessary for the feudal manor to be self-sufficient?

3. List the buildings you would expect to see on a medieval manor.

Improvements in Agriculture

4. What was the three-field system?

5. How did the three-field system make farming more efficient?

6. List the changes in technology that helped improve agriculture in the Middle Ages.

Part 4: The Medieval Church

Growing Influence of the Church

7. What were the duties of a parish priest on a medieval manor?
Appendix F: Sample Planning Description (Catherine)

I will describe how I see your planning at the five levels that researchers have identified in teacher planning: yearly, term, unit, weekly and daily. I appreciate your looking at this and providing me with feedback and corrections. Since planning is a mental process, I have to infer much of what you do, though I have asked you a lot of questions about this area, too.

The two most general levels of planning appear to function in the background of your thinking. That is, I don't see evidence that you have actually designed a year-long or term syllabus for the course. Rather, you know roughly what you want to do, based on previous experiences and a conception of what a good English course involves. For example, in January, you expressed concern at a team meeting that you hadn't done enough reading of novels. This wasn't because you were not fulfilling some aspects of a course you had designed, but because your sense of the proper balance for an English course was causing you to worry. Clearly, you consider it important that students read novels.

English teachers have a curriculum guide from the Ministry of Education, but you don't see to consult it regularly in designing your course. I have examined the guide, and I can't see how anyone could use it very effectively. It gives general guidelines and a lot of freedom to interpret as you choose. I suppose that's a positive quality for an experienced teacher.
teacher like you, isn't it? You told me that you know your work aligns with the principles of the guide, principles like responding to literature and student choices.

Instead, I see you planning the direction of the year based on varying activities and balancing the kinds of things your students do. For example, on my first visit to your classroom, I saw you working with short stories, incorporating students' values into an analysis of the work, and the students were also working on autobiographies. You followed this up with a unit on a novel, again focussing on students' responses to the novel. Throughout both units, you had students doing a variety of reading and writing activities. After the group novel, you conducted a "reader's workshop," which involved students selecting books to read and write about, and coordinated this with a "writer's workshop," in which the students produced stories.

Based on your interaction with the team, you then had the students do a word project involving research, creative expression, and art, something you frequently incorporate. You planned to follow this with the unit on *The Outsiders*, but in discussing with the team, you adjusted your plan and did the fairy tale unit first.

In the general flow of these units, I do not see you operating from a master plan for the year. You know the kinds of things that you have enjoyed and that the students enjoy. You select from among these on the basis of a conception of
balance—what the kids need to learn in English and what will provide enough variety—and a willingness to fit in with your team members' work. You were, for example, quite willing to delay *The Outsiders* until Trent could work with Chinese society.

In addition to your sense of what has worked for you in the past, you are well informed about current developments in the field. For example, you have found Nancie Atwell's approach to teaching (workshops and mini-lessons) something that works well for you. Also, though I doubt there was much work in reader's response theory when you were first educated as an English teacher (I didn't receive any training in it), you have incorporated the theory into your classes. You take courses to learn more, you attend workshops, you experiment, you change. All this means that though you are influenced by what has worked in the past, you readily try new ideas.

Let me summarize. You function from a fairly vague map of what the year should look like, and you adjust according to your interests and what you perceive to be the needs and interests of your students. You do not specifically plan out a term. Rather, the units you pursue may or may not fit into the term schedule. For example, the reader's workshop began near the end of the first term and continued into the second. There is no central resource, such as a textbook, that you use to structure the course; you don't have a written plan from which you operate. One question I'd like you to address is this:
What is the role of content in your yearly (or other) planning?

What guides your thinking in this area? For example, is one novel as good as another for your purposes, or do you have some content-based standards you employ?

The next level of planning is the unit. You devote a good deal of thought to planning units. You described how you approach this quite explicitly. You consider materials and resources, activities for the students (including opportunities for creative work), and objectives. You hypothesized for me how you would plan a new unit, and it seems pretty consistent with what I've observed.

You start by considering materials. For example, do you have the books you need to teach a novel? If you have the basic materials, then you consider how you can make the material "live for the kids," which means pulling in other resources. With *Promises to Come*, for example, that meant bringing in a speaker who was familiar with the refugee situation in Indo-China (though you said you would have preferred an actual refugee if that had been appropriate and possible). You engage in brainstorming—often with the team—about the sorts of resources that might be effective: other books, stories, films, speakers, whatever you can use. This explains why the field trip to *Beauty and the Beast* fit in so well with the way you plan your units. It wasn't that you wanted to "test" the students on the film's content, but that you wanted to make fairy tales seem alive and relevant.
After this important work in locating materials and brainstorming other resources, you think about the objectives you want the unit to accomplish. You like to think about objectives in fairly general terms, such as wanting the students to write an essay in the unit you did on World War II last year or wanting them to do some work with expository writing while studying *Romeo and Juliet*. But you can get very specific as well. When you wrote up a plan for the fairy tale unit, you specified more than a dozen objectives ranging from very concrete ("bind the story to create a book") to fairly abstract ("understand or recognize the characteristics of the fairy tale"). I don't think it's your usual practice to write out objectives for a unit, though clearly you think about what you want the students to learn. Is this perception accurate? Was the written plan for the fairy tale unit an exception to your normal working process?

Closely connected with the issue of materials and resources, you consider what activities you can have the students do. Often this includes "art or creative activities," which is clearly evident in the student work you generally have posted around the room. The students obviously respond to this kind of activity, producing amazingly beautiful projects for your class. A couple of times this year I noticed that you considered the marking consequences of student activities. You spend quite a bit of time marking student papers—rough drafts, final drafts, response journals and so on.
When Too suggested adding an element to the word project and a written product for the problem-solving unit, you resisted because of your tremendous marking load. My suspicion is that you generally don't consider the marking that will result from student activities when you plan, though these examples show that sometimes you do. What's your view on this?

You also incorporate group activities into your unit planning, though I'm not sure if you follow any guidelines in this. For example, you will often have groups work together on such activities as looking up words in a dictionary or proofreading each others' papers. While this seems to be a frequent technique for you, I don't know if you actually plan X number of group activities when you design a unit. I assume you adjust as you go, looking for opportunities to allow for group work. Is this how you see it?

I would like to know a little more about your thinking concerning activities. When you plan a unit, what role do you see for the activities the students do? Is there a pattern to your planning of activities? Do you have a set of standards or expectations for activities?

You have a few things that seem to appear in any given unit. For example, you like to get the students to respond to what they read, and to this end, you seem to incorporate a response journal in most units. Also, you enjoy (as your students clearly do) reading aloud, and you find a way to
include this activity in most units. Is that a conscious planning decision or merely an aspect of the repertoire of teaching techniques that you draw on? A third common aspect of your units is the inclusion of student input. Even when the students are presumably all working on different material (as in the reader's workshop or the word project), you find commonalities to discuss in class, asking for their ideas and opinions.

As with the yearly planning, your unit plans do not necessarily or usually get written down as a formal planning document. However, you often provide your students with some document that structures the unit for them. For example, you gave them a description of the word project that provided an overview of the project and associated activities, specified the requirements for each section of the project, established an evaluation plan, and listed the possible words. For the fairy tale unit, you gave the students an assignment sheet for the written aspect of the project. This did not apply to the unit as broadly as your word project description, but it did provide a focus for a substantial portion of their activities in the project. During the reader's workshop, you posted a set of rules on the bulletin board that structured the unit. You also gave the students a copy of these rules in a paper that provided guidelines for the entire unit. Thus, while you do not always provide the students with a full unit plan, you usually give them some sort of organizational aid. You also give them the plan orally by describing what the unit will focus on and what
some of the major activities involved in it will be when you introduce it.

The weekly level of planning is more important to elementary teachers than secondary, and I don't have any examples of your work at this level. Perhaps you have some ideas about this. Since you function in the 8 by 4 rotation, maybe you think more in terms of that cycle. As far as I can tell, you plan the year, units, and daily lessons, but do not make term or weekly plans. Do you, for example, evaluate possible activities based on the day of the week?

No, I don't think so. I try to make lesson plans in a particular way throughout the week, but it depends on the amount of work I'm doing. I make lesson plans on my own.

The last level of planning is the daily level or lesson plan. I have a bit of a gap at this point in that I'm still waiting to see your daily planbook. (Maybe you could copy a few pages for me?) Essentially, though, I think I understand your approach. In making lesson plans, you are guided by the unit plan and the progress students have made to this point. Your students are often engaged in project work, so daily lessons tend to involve some introductory work (perhaps a mini-lesson) and getting the students to work. The major exception to this pattern was *Promises to Come*, when you were reading aloud a great deal. Then, following the introduction, you spent most of the period reading.

You tend to begin a class with a progress check. You often will have a student question or sample to start with, and you
Inform the students of what will happen in the class period. Quite frequently this will involve some work time—reading, writing, revising, and so on. You tell the students about the plan for the day and how it fits into the unit, and then you launch into whatever work you have planned. For example, on January 13, you began class by explaining how their work with etymologies fit into the overall word project. Then you contextualized the work of the day as practice for the larger project. You distributed a worksheet and then circulated among the students for the rest of the period to help those who needed assistance. On January 23, when the students were well into the word project, you began class by showing a student's work at this point so they had a model. Then you announced what needed to be done for the day, showed the students where they could get resources, and had them start working.

The worksheet often focuses your daily lesson. Typically, you try to personalize the work, though this isn't always possible. For example, your worksheet on vocabulary words from "Penny in the Dust" asked students to find meanings for the words in context (though your discussion later personalized these words). The next worksheet, to focus discussion on the story, allowed students to compare their opinions on four issues with what they saw as the author's opinions. Other worksheets throughout the year continued this pattern: some focusing narrowly on content (e.g., etymologies), but most inviting personal input and
connections (e.g., journal assignments for *The Outsiders*).

In planning a daily lesson, then, it seems you generally include a central focus time where you explain what is or should be happening for the day and fit that into a larger unit. Rum there, the daily plan is merely the continuation of unit work, often centered around a worksheet. You do not operate with a notion, for example, that a lesson ought to be divided into a certain number of different activities. Do you consciously plan routines to assist the students? For example, "-P-z, of the work before, you know what you're doing each day as you progress through the units. However, it seems that you do not operate with a notion, for example, that a lesson ought to be divided into a certain number of different activities. Do you consciously plan routines to assist the students?

You told me that you do not write out lesson plans, but starting every day with a similar opening. Perhaps you can add to or correct this description of your planning. I realize this is a simplified version of what you actually do, and I appreciate your input in getting it right.