THE NATURE OF TEACHER EXPERTNESS
AND ITS ATTAINMENT

by

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF EDUCATION

in
THE FACULTY OF GRADUATE STUDIES
Department of Administrative, Adult & Higher Education
(Educational Administration)

We accept this thesis as conforming
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UNIVERSITY OF BRITISH COLUMBIA
April 1991
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DE-6 (2/88)
ABSTRACT

The purpose of the study was to explore the nature of teacher expertness and its attainment. The study was founded upon studies of expert teaching practice and studies of cognitive development.

Data for the study were collected from forty secondary school teachers in one large school district in British Columbia. Data analysis involved two procedures. The first was a form of content analysis designed by the researcher to examine teachers' explicit and implicit descriptions of teaching practice. The second, done in order to gain insight about the nature of expert teachers, was an adaptation of Baltes' method of identifying five wisdom criteria. These criteria are factual knowledge, procedural knowledge, contextualism, relativism, and uncertainty. Some themes that were found to pervade teachers' discussions were also reported and discussed separately.

It was found that listening to expert teachers as they discuss their practice confirms what is known about expertness in a number of domains as well as what is known about expert teaching practice. New insights about expert teaching practice are yielded by paying attention to what is implicit in teacher-talk. It was also found that the model developed by Baltes and his associates was useful in extending knowledge of the teaching domain and might well be applied to studies of experts in other domains.

Three principal conclusions were drawn. Expert teachers are prepared to assume responsibility for their own continuing development. They appear not to be prepared to assume that responsibility for their less expert colleagues. It was also concluded that administrative officers in secondary schools do not increase the expertness of teachers through the supervision of instruction and that the practice of instructional supervision for this purpose requires further study.
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ACKNOWLEDGEMENTS

The researcher wishes to express sincere thanks to Dr. Graham Kelsey for his guidance in the design and presentation of this study. He has been consistently generous with his time and his expertness. Thanks are also extended to Dr. Ian Housego and Dr. Patricia Arlin for their encouragement and support.

The participation of the teachers and of the Research and Evaluation Department of S.D. #36 (Surrey) has been vital in the accomplishment of this study. Special thanks are extended to all of them for their assistance and for the enjoyable time spent with them.

The researcher also wishes to acknowledge the encouragement and financial support received from the Social Sciences and Humanities Research Council of Canada.
CHAPTER 1
INTRODUCTION

This study was born of the author’s intense interest in expert teaching or, more precisely, the teaching of expert teachers. This interest developed into a general statement of purpose: to explore the nature of teacher expertness and the way it is perceived to be attained.

This chapter describes the background perspectives out of which the study was conceived and executed, presents the problem that the study addresses and the approach to its solution, and provides the reader with an overview of the dissertation.

Purpose and Background Perspectives
When students learn what they are expected to learn and are happy in school, teachers are given a major part of the credit; when students do not learn, when they rebel or drop out of school, teachers are held responsible, at least in some measure, for the failure. Teachers, then, are considered to be largely responsible for student success in schools. As a result, teaching practices are the subject of extensive educational research. For background to the present study, it is useful to consider the general perspectives of these research studies.

Research about teaching practice has, for the most part, been approached in two ways: first, by investigating procedural techniques or strategies which appear to facilitate student learning and second, by studying the kinds of abilities needed by teachers in order for them to be able to respond to the varying demands of the teaching situation. The first of these research approaches has consisted of process-product research, also referred to as teaching-effectiveness research; the second approach has involved studies of cognitive psychology with an emphasis on teachers’ thought processes (Shulman, 1986).
Process-product research, which includes studies in areas such as time-on-task, direct instruction, and active teaching, has, as its most important contribution, shown that teachers do make a difference to what students learn in schools. It has also drawn attention to the importance of research as a means of producing knowledge for the improvement of teaching practice. These are important contributions; however, process-product research has been limited to the analysis of relatively simple or simply conceived teaching skills and behaviours despite the fact that teaching is a complex task and its practice requires a dynamic performance. Indeed, it has been shown that many of the important components of teaching are cognitive in nature (Berlin, 1986; Showers, Joyce, and Bennett, 1987). Shulman (1987), for instance, has concluded that “the behavior of teachers remains inscrutable unless it is understood as a function of the minds and motives of those who behave” (p. 384).

Cognitive studies of teachers have focused, for the most part, upon investigations of teachers’ thoughts before, during, and after teaching (Shavelson, 1983). These studies have centred upon teachers’ thoughts in relation to the kinds of activities studied in the process-product research. Again, the subtleties and complexities of teachers’ performances have not been explored. What is missing is an investigation of the ways in which teachers make the diverse decisions and judgments which teaching practice requires.

In order to understand the complexities of work in some domains, the study of experts has been productive. By identifying the means that experts use to solve problems and by transmitting an account of their strategies to those who are less expert, performance has been improved (Kahney, 1986). It seems likely that expert teachers, too, have an understanding which goes beyond that of the novice or the teacher who is merely competent. If expert teachers can give an account of their practices, what they do and how they learned to do it, the nature of teaching expertness may be more readily understood and described so that it may be emulated by those who are not yet expert. This assumption led
to the first decision about the conduct of the present study: that it would attempt to obtain from expert teachers an explanation of their expertness and its attainment.

Because much of their knowledge is tacit, experienced practitioners often have difficulty when they try to articulate the basis of their expertness (Berliner, 1986; Polanyi, 1975; Schön, 1983). One of the concentrations in the present study, therefore, is upon uncovering the knowledge and skill which are not articulated but are implicit in the teachers’ descriptions of their actions.

The tacit knowledge of teachers, then, is part of what has been called their “wisdom of practice” (Shulman, 1987). Wisdom with regard to teaching practice may also be looked upon from quite another point of view. Rather than looking at what Shulman calls the wisdom of practice, it may be possible to look at what we may think of as the practice of wisdom. The distinction is not merely playing with words. The difference in perspectives is that, in a search for an understanding of the nature of expertness, one can study wise practice and one can also study the practice of wise persons. Although these perspectives are not the same, they may be complementary. On one hand, by discussing their practice, expert teachers may reveal something of what is wise in the choices and judgments they make in order to be successful in their work with students. On the other hand, by investigating what is wise about expert teachers, researchers may discover what facets of wisdom expert teachers possess which make it possible for them to make the right choices and judgments.

Although studies of wisdom as an outgrowth of research about adult cognition have proliferated during the last decade (Sternberg, 1990), studies of the wisdom inherent in those who skillfully practice a profession have not been extensive. In order that such a study could be conducted, a model for analyzing wisdom was needed and it was necessary for that model to be adapted for use in the analysis of the wisdom of those who teach expertly. The suitability of the model and the success of its adaptation for the analysis of teacher expertness also needed to be determined. This, then, was the second quest
undertaken in the present study: to search for a means of identifying the nature of the wisdom inherent in expert teachers and, if possible, to describe that wisdom.

In this chapter, it has been shown that the thesis reports two parallel investigations of teacher expertness: first, inquiry about the way expert teachers explain the nature of their expertness and how it has been attained; second, inquiry about the possibility of exploring the wisdom inherent in expert teachers and of describing that wisdom. The study will be important to the extent that it is able to present a picture of the expert teacher and describe the means by which other teachers can become experts. It may also be important to the extent that it reveals the degree to which expert practitioners are able to describe the intricacies of their craft: the way they make the myriad decisions and judgments required in their work with students.

It is anticipated that the study will add to the growing body of research about the concept of wisdom. In its investigation of the possibility of identifying certain facets of wisdom inherent in the expert teacher, it may also be important to those who are concerned with improving teaching practice.

The Organization of the Thesis

This chapter has described the background perspectives of the study and its possible contributions. Chapter 2 reviews the pertinent literature and describes the derivation of the study stemming from the field of cognitive psychology. The conceptualization of the study is presented in Chapter 3. Chapter 4 discusses the research design and procedures, including the methods of data collection and analysis. The findings are presented in the three chapters that follow: Chapter 5 focuses upon teachers' descriptions of expertness and its attainment, Chapter 6 reports the results of the use of a framework to enquire into the wisdom of expert teachers and describes what was discovered about that wisdom, and Chapter 7 discusses some themes that pervade the protocols. In each of Chapters 5, 6,
and 7, the findings are first presented, then examined, and finally, summarized. Chapter 8 reports and discusses the salient findings from the study. The thesis concludes with implications resulting from the findings and offers suggestions for further research.
CHAPTER 2

STUDIES OF EXPERTNESS AND WISDOM

Chapter 1 offered an introduction to two parallel investigations undertaken in this study of teacher expertness: first, an investigation of the way expert teachers explain the nature of their expertness and how it has been attained; second, an investigation of the possibility of exploring the wisdom inherent in expert teachers and of describing that wisdom. This chapter provides displays of previous research findings and conclusions from which the present study was conceptualized. First there is an account of expertness, general expertness and teacher expertness, and of how knowledge of it has been gleaned from discussions with experts. A second account centres on studies of wisdom, prefaced by a review of the course of research in cognitive psychology which has led to these studies of wisdom.

THE STUDY OF EXPERTNESS

This section of the literature review begins with a discussion of the general nature of expertness. There follows a report of previous explorations of the particular expertness of teachers. The section concludes with an account of problems encountered when teachers are asked to discuss their expertness.

The word *expertness*, as used in this thesis, is meant to embrace a broader range of expert knowledge and its use than does the word *expertise*. Although *expertise* is the term used in most studies, it may be seen to be suggestive of the rather slick use of expert knowledge and the rather automatic use of expert skill. *Expertness*, it is proposed, suggests a more deeply etched, wiser, and more considered use of expert knowledge and
skill. It was decided, therefore, to use the term *expertness* in the present study except when other authors who use the term *expertise* are quoted directly.

**The Nature of Expertness**

Researchers who have attempted to understand the nature of expertness have investigated not only the knowledge of the expert but also the way the expert puts that knowledge to use. In this section, studies about these aspects of expertness are reviewed.

**The Knowledge of the Expert**

Studies of novices and experts indicate that it is domain-specific knowledge rather than general cognitive ability that results in the development of expertness (Chase & Simon, 1973; Chi, Feltovich & Glaser, 1981; de Groot, 1966; McKeithen, Reitman, Rueter, & Hirtle, 1981; Simon & Simon, 1978; Soloway, Erlich, Bonar, & Greenspan, 1982). These studies of the way in which the knowledge of an expert is bounded by that person's particular situation are reported in this section. Studies of technical knowledge, tacit knowledge, and life-span knowledge are also included in this discussion of the knowledge of the expert.

*Specificity of expert knowledge.* Ceci and Liker (1986), discussing practical thought, argue that "the generality of intelligence is probably more illusory than any of us would like to admit" (p. 138). They say that there are various types of intelligence and that:

- each context carries with it a set of environmental challenges and opportunities that one strives to meet. Intelligence is best seen as the extent to which individuals have successfully met with the most important environmental challenges in their lives. (Ceci & Liker, 1986, p. 138)

In a similar manner, Scribner (1986) states that she uses the term *practical thinking* "to refer to thinking that is embedded in the larger purposive activities of daily life and that
functions to achieve the goals of those activities” (p. 15). Scribner (1986) analyzed the results of research on practical thinking conducted in a milk-processing plant and among bartenders, sales engineers, and waitresses. These studies used both ethnographic and experimental techniques. In her analysis, Scribner also included research on tailors (Lave, in preparation), on magistrates (Lawrence, in press), and on office workers (Suchman, 1985). She (1986) reports that:

What emerges unexpectedly from the research is the degree of specificity of the knowledge involved. From an analyst’s bird’s-eye point of view, the amount of even so-called specific knowledge required for task performance often appears vast and unbounded. But from the problem solver’s point of view, what needs to be known may have quite definite boundaries, drawn in terms of the functional requirements of the task. (p. 27)

Scribner also discusses work done by Kusterer (1978), who, having conducted a thorough study of knowledge on the job, concluded that in some occupations, workers need to concentrate upon only a narrow range of specific knowledge in order to become experts in their field. Indeed, there was an “extraordinary selectivity of some areas of working knowledge” (Scribner, 1986, p. 27). Scribner quotes Kusterer’s accounting for this selectivity:

Unstudied phenomena remain unknown because they do not normally have any practical consequences affecting the worker’s ability to carry out his assigned tasks. (Kusterer, 1978, p. 131; cited by Scribner, 1986, p. 27)

As the specific knowledge of the expert is analyzed, much of it can be classified as technical knowledge. One attribute common to technical knowledge across domains is that it can be codified and taught as discrete units to novices who are seeking to become experts. Technical knowledge, therefore, has elicited research which is of interest to an understanding of expertness.

Technical knowledge. The specific knowledge of the expert is analyzed by Kennedy (1987) in her discussion of professional expertness. Kennedy considers a number of definitions of expertness, the first of which she labels the “technical-skills”
definition (p. 134). This definition of expertness derives from studies of particular tasks that a professional performs. An example of this approach in the teaching profession is the Competency-Based Teacher Education movement, based upon the belief that:

- teaching expertise can be broken down into discrete units; each unit can be defined as an observable behavior; and each unit can be taught to prospective teachers independent of the other units.

Kennedy’s “technical-skills” definition of expertness is similar to the model of “Technical Rationality” that Schön (1983) describes. According to this model:

- the systematic knowledge base of a profession is thought to have four essential properties. It is specialized, firmly bounded, scientific, and standardized. (p. 23)

The “technical-skills” and “technical-rationality” approaches to the development of expertness are based on the conviction that expertness depends upon the acquisition of theory-based, domain-specific knowledge. For a time, following World War II, and with added impetus after the Soviet launching of Sputnik in the mid-1950s, this belief guided the training programs of a number of professions, including educational administration and medicine (Schön, 1983) and engineering (Ernst, 1985). In the last two decades there has been a general disenchantment with the results of the technical-skills models (Broudy, 1984; Sheahan, 1980).

Increasingly we have become aware of the importance to actual practice of phenomena—complexity, uncertainty, instability, uniqueness, and value-conflict—which do not fit the model of Technical Rationality. (Schön, 1983, p. 39)

Kennedy (1987) is cautious:

- Finding a proper role for technical skills in a definition of expertise is problematic. Emphasis on skills to the exclusion of other aspects of professional expertise may not facilitate practice. Yet exclusion of technical skills training may also fail to facilitate practice. (p. 136 - 137)

Technical knowledge, because it is capable of written codification (Oakeshott, 1962), can be readily available knowledge. But not all of the knowledge of the expert is so explicit. Polanyi introduced the concept of tacit knowledge:

- Personal, tacit assessments and evaluations, we see, are required at every step in the acquisition of knowledge—even “scientific” knowledge.... Textbooks of
chemistry, biology, and medicine are so much empty talk in the absence of personal, tacit knowledge of their subject matter. (Polanyi & Prosch, 1975, p. 31).

Wagner and Sternberg (1986) have made a study of tacit knowledge which they describe as "knowledge that is not openly expressed or stated" (p. 54). This and other studies of tacit knowledge are discussed in the following section.

Tacit knowledge. After completing five experiments carried out in two domains, Wagner and Sternberg (1986) have drawn some conclusions about the nature of tacit knowledge:

1. Experts in real-world domains differ from novices in, among other things, having acquired domain-related tacit knowledge.
2. Differences in tacit knowledge are related to differences in domain-related performance.
3. Tacit knowledge of the sort examined in the present experiments is more than simple "careerism".
4. Acquisition of tacit knowledge does not appear to be closely related to performance on traditional measures of verbal intelligence.
5. Individual differences in tacit knowledge appear to be general rather than specific in nature (pp. 76-77).

Wagner and Sternberg (1986) conclude:

By our use of the word tacit we do not wish to imply that such knowledge is completely inaccessible to conscious awareness, unspeakable, or even unteachable, but merely that it usually is not taught directly to most of us. Although some tacit knowledge conceivably could be taught directly, much tacit knowledge may be disorganized and relatively inaccessible, making it potentially ill suited for direct instruction. (p. 54)

These authors note that their studies of tacit knowledge have not answered important questions about its acquisition and the possibility of accelerating this acquisition.

Eraut (1985) describes tacit knowledge as know-how: "experience-derived know-how which professionals intuitively use" (p. 119). This know-how, Eraut speculates, is essentially implicit and much of it may not lend itself to description and explanation, for such intuitive knowledge, "outside traditional syllabi", is usually rather imprecisely described. Rybash, Hoyer, and Roodin (1986) agree:

Generally, experts are not conscious of the knowledge, processes, and rules that enable them to perform competently. Despite the presence of knowledge structures that permit the solution of highly complex problems in a domain, experts may not
necessarily be able to describe how they arrive at a decision. This suggests that an intuitive approach to problem solving is characteristic of expertise. (p. 109).

Eraut relates the intuitive element of domain-specific knowledge to the use of metaphors and images, which, derived from practical experience, function as disseminators of theoretical ideas (Broudy, Smith, & Burnett, 1964). Buchmann (1980) has shown that "accounts of progressive classrooms are notable for their image-making as opposed to analytic qualities" (Eraut, 1985, p. 125).

In her studies of expertise in nursing, Benner (1984) found that when a nurse has dealt with many people she acquires an ability to interpret new situations, but that this "multifaceted" knowledge with its experiential basis cannot easily be put into abstract principles or explicit guide-lines (p. 37).

Schön (1983) has commented on the inarticulateness of experts when they are asked to account for their skilled performance:

When we go about the spontaneous, intuitive performance of the actions of everyday life, we show ourselves to be knowledgeable in a special way. Often we cannot say what it is that we know. When we try to describe it we find ourselves at a loss, or we produce descriptions that are obviously inappropriate. Our knowing is ordinarily tacit, implicit in our patterns of action and in our feel for the stuff with which we are dealing. It seems right to say that our knowing is in our actions.... (p. 49)

The conclusion of Rybash, Hoyer, and Roodin (1986) about tacit knowledge is that "expertise within any domain gives rise to a set of intuitions that are derived from the automatic, unconscious processing of relevant information" (p. 148).

Rybash, Hoyer, and Roodin (1986) contend that "another way to chart the developmental course of knowledge is to maintain that knowledge becomes increasingly expert during the adult years" (p. 108), a statement that suggests the usefulness of a review of studies of aging and expertness through the life-span.

Life-span knowledge. The "influence of experience, knowledge, and skills on processes such as cognitive performance, judgment, reasoning, and wisdom" have been designated "the pragmatics of intelligence" (Dixon & Baltes, 1986, p. 210). Studies of successfully aging adults, that is, of adults who continue to perform at near peak levels
throughout the life-span, suggest that it is possible for older adults to acquire new cognitive skills or at least not suffer decline in the maintenance of established skills, and that these aged adults may acquire superiority in some cognitive reasoning ability (Baltes, Smith, Staudinger, & Sowarka, in press).

The aspects of intelligence which do not show decline, researchers suggest, are those which can be associated with pragmatic intelligence:

(1) the practical, cognitively demanding situations of daily professional life; (2) the natural course of experience and accumulation of cultural knowledge; (3) select domains of specialization or expertise; or (4) such hypostatized domains of mental functioning as wisdom. (Dixon & Baltes, 1986, p. 204)

This conclusion is reinforced by Rybash, Hoyer, and Roodin (1986):

Knowledge that is integrated within a specific-domain manner remains relatively permanent, accessible, and fixed in long-term memory. (p. 146)

This review of work on the knowledge of the expert has revealed that expert knowledge is often limited to the domain in which the expert works and can only be applied to a narrow range of activities. The knowledge of the expert may also be limited to technical knowledge, that is, knowledge which can be applied to certain technical aspects of the particular field in which the expert works. Technical knowledge is usually easily described and codified; tacit knowledge, on the other hand, is difficult to describe and is seldom taught directly. Finally, studies have shown that the knowledge of the expert may be largely maintained throughout the life-span.

Researchers, then, have enquired about the nature of expert knowledge. They have also enquired about the ways experts use their knowledge to guide behavior. Kuhn (1983) has made a distinction between what she calls executive 1 and executive 2 strategies. Executive 1 strategies comprise knowledge of tasks or problems themselves; executive 2 strategies comprise knowledge of the appropriateness of certain strategies to solve particular problems. Kuhn's executive 1 strategies were discussed above as the knowledge of the expert; executive 2 strategies will be reviewed as the use of expert knowledge.
The Use of Expert Knowledge

In order to understand how experts apply their knowledge, it will be helpful to consider the nature of the problems that experts are asked to solve. These problems are seen to be of the ill-structured kind (Churchman, 1971; Kitchener, 1983; Eraut, 1985) and the ability to solve ill-structured problems is seen to be a measure of the expert.

Puzzles and ill-structured problems. A distinction has been made between puzzles and ill-structured problems (Churchman, 1971; Kitchener, 1983; Mitroff & Sagasti, 1973). Elstein, Schulman and Sprafka (1978) refer to this dichotomy as well-defined and ill-defined problems. Puzzles or well-defined problems are seen to have only one solution, whereas ill-structured or ill-defined problems may have a number of solutions or no solution at all. The differences between puzzles and ill-structured problems are summarized by Kitchener (1983):

In ill-structured problems there is not a single, unequivocal solution which can be effectively determined at the present moment by employing a particular decision-making procedure.... Evidence, expert opinion, reason, and argument can be brought to bear on the issues, but no effective procedure is available which can guarantee a correct or absolute solution. A solution must be constructed by integrating or synthesizing diverse data and opinion. (pp. 224 - 225)

The discussions of the two kinds of task permit their comparison on key elements to be summarized in Table 2.1.

Table 2.1. Characteristics of Puzzles and Ill-structured Problems

<table>
<thead>
<tr>
<th></th>
<th>PUZZLES</th>
<th>ILL-STRUCTURED PROBLEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge required for solution</td>
<td>Known</td>
<td>Not necessarily known or knowable</td>
</tr>
<tr>
<td>Rules for finding solution</td>
<td>Given</td>
<td>Not given</td>
</tr>
<tr>
<td>Solvability</td>
<td>Certain</td>
<td>Not certain</td>
</tr>
<tr>
<td>Solution</td>
<td>One only</td>
<td>Several may be possible</td>
</tr>
</tbody>
</table>
As experts meet new problem situations, they are seen to process information in different ways than do their less expert colleagues.

**Problem-solving processes.** Experts, it is postulated, possess a bank of memorized solutions to many problems which they can call upon when they are presented with a new situation. They are also seen to have accumulated, as a result of experience, established patterns and structures within which information is stored. Kahney (1986) discusses Adelson's (1981) research which indicates that:

Experts have a hierarchy of knowledge about a domain which enables them to organize clusters of information into higher order structures.... It is these functional information structures that give experts such a great advantage over novices in a wide range of tasks. (p. 108)

It may be that the "functional information structures" are the basis for what is understood as the expert's intuitive response.

Studies of differences between experts and novices have shown that, when attacking a problem, experts tend to fall back to in-depth, basic principles whereas novices try to dissect elements of the problem statement itself (Chi, Feltovich & Glaser, 1981). Again, novices are likely to perceive the concrete content of problems while experts are likely to relate to the abstract structure of the problem (Bereiter & Scardanalia, 1986). It has also been shown that, when novices approach a new situation, they tend to think of a means-ends analysis, working backwards from the goal to look for solutions; experts, on the other hand, work forwards from information they have previously stored, applying that knowledge to the problem situation (Bhaskar & Simon, 1977).

Researchers, then, have found expertness to be domain-specific and to include technical, tacit, and life-span knowledge. The expert is able to use this knowledge to solve ill-structured problems and to employ various strategies to solve problems. It is research about the particular expertness of teachers which permits the conceptualization of the present study and it is to this research that the literature review now turns.
**Teacher Expertness**

Expert teachers, it is assumed, have an understanding which goes beyond the systematic knowledge base and the carefully honed set of technical skills which are prerequisites for competency in the profession. In the past decade, several methods of inquiry have yielded information about what it is that characterizes expert teachers and sets them apart from non-experts. In this section, both the methods of inquiry about expertness and the results of the ensuing studies are reported. The major problems encountered in studies of teacher expertness are also discussed and the challenge to further research is presented.

The Methods of Inquiry and the Findings

The search for an understanding of teacher expertness has, for the most part, been conducted through observation of teaching practice. These observation studies have provided findings about the relationships between teacher actions and student learning, and have resulted in much of the effective-teaching and school-improvement professional development movements of the 70s and early 80s (Shulman, 1986). The observation of teacher performance has sometimes been extended to a search for an understanding of teacher thoughts: thoughts about planning instruction, about conducting lessons, and about evaluating results. The methods of inquiry used by researchers to record teacher thoughts have been reviewed extensively by Clark and Peterson (1986) and Shulman (1986). Four particular types of inquiry were identified: thinking aloud techniques, stimulated recall, policy capturing, and journal keeping.

Thinking-aloud techniques involved having teachers verbalize their thoughts as they planned, conducted, and evaluated instruction. Sometimes simulated materials, prepared by the researchers, were used. Because thinking aloud was not often practical during
The usual practice in the stimulated recall type of study was for the researcher to make a video- or audiotape of a lesson taught by an expert teacher. The tape was later re-played for the teacher who was asked to comment on her actions during the lesson and to explain the reasons for her actions. Stimulated recall techniques varied: some researchers re-played only certain episodes in the lesson; some stopped the re-play when the teachers wanted to comment or explain their reflections upon the lesson; some used open-ended techniques, soliciting general comments from the teachers.

The policy-capturing technique was used to study teacher judgment processes. Teachers were given printed descriptions of student placements, evaluations, or groupings, or they were given information about hypothetical teaching situations. Then the teachers were asked to make a judgment or decision about what they had read. The idea was to weight teachers’ responses, usually on a Likert scale, as to the importance they attached to certain pieces of information. The “policy” of the teachers was thus assessed with regard to certain domains, such as student placement or teaching strategies.

In the journal keeping studies, journals usually recorded the teacher’s plans for presenting a lesson and that teacher’s comments upon completion of the lesson. The comments pertained to reasons for making certain lesson plans, to descriptions of how the plans were implemented or to reasons given for the plans being changed or perhaps abandoned, and to evaluations of the success of the lesson. Journal entries were subjected to content analysis and were intended to provide insight regarding the planning process.

These and other studies of teachers' thoughts about the planning, presentation, and evaluation of their teaching practice, and of their judgments and decisions about situations they might meet, provided some insight with regard to teacher expertness. Although studies of expertness across a number of domains have provided information which can be applied to teacher expertness (for instance, the kinds of knowledge experts possess and the ways
they use that knowledge) the studies about teacher thoughts have provided further insight about the particular expertness of teachers. There have been findings about the knowledge of expert teachers, the way experts have well-established patterns of knowledge, the role of experience in expertness, and the way expert teachers structure routines in their teaching practice.

In the first place, expert teachers are seen to possess a great deal more knowledge about teaching practice than do their less expert colleagues (Berliner, 1986; Calderhead, 1983; Housner & Griffey, 1985). Because of this accumulation of knowledge, they are able to anticipate, predict and make inferences in unusual circumstances.

Not only do expert teachers possess a great deal of knowledge; they are also skillful in categorizing their knowledge in a well-established order which facilitates rapid recognition of patterns. The result is the ability to respond to students and situations by referring to previously tested techniques, reducing the expenditure of time and energy, and freeing the mind to deal with additional demands upon it (Berliner, 1986).

Teacher expertness appears to develop over long periods of time. Expertness, it seems, comes with experience. Berliner, 1986, discussing a study by Huberman (1985), states that:

Problems of discipline, effectiveness with both slow and rapid students, sustaining the interest of poorly motivated students, having a variety of materials that students like to work with, and establishing a satisfactory set of requirements for the classroom were all judged as being accomplished in no less than five years for the majority of the teachers. (p. 12)

Experience is a necessary but not a sufficient reason for being classified as expert (Berliner, 1986; Huberman, 1985).

Finally, expert teachers have mastered routines to use in their teaching practice. Rosenshine (1986) discusses teaching “functions” that aid student learning. He has concluded that: “When teachers teach more systematically, student achievement improves—frequently with gains in students’ attitudes toward themselves and school” (p. 69). The ability to establish routines appears to have a function similar to the categorizing and
patterning skills: it frees the teacher to deal with other students and other situations needing attention.

After summarizing research findings about teacher expertness, Berliner (1986) states that by observing teaching practice we have learned many things about successful teaching and that we now know a great deal about the observable teacher practices that are related to effective teaching. What we do not know, Berliner contends, is why expert teachers choose certain practices at certain times and why they abandon activities and routines that they or others have previously found effective. He concludes, "Now we want to go inside teachers' heads and ask them why they do the things they do....They know something we don't. We'd like to find out what" (p. 9). One way to go inside the heads of teachers and to find out what they know that we do not know is to ask them to discuss their work.

**Teachers Explaining Expertness: Can They Do It? Can We Understand?**

Flinders (1989) has suggested that the teaching profession can learn much about the complexity and artistry of teaching by listening to practitioners:

> We might begin by cultivating our own abilities to engage teachers in genuine dialogue. Basic to this dialogue is our perceptiveness—learning to see and hear teachers in ways that take us beyond stereotypical images. (p. 20)

Yet expert teachers are seldom asked to discuss their expertness (Glickman, 1989; Yonemura, 1982). The literature provides some explanation for the apparent neglect of a valuable resource: problems have been encountered in attempts to have teachers discuss their practice. The difficulties, for the most part, pertain to the nature of the knowledge that needs to be transmitted and to the language that is needed in order to transmit that knowledge.
The nature of expert knowledge. The nature of the knowledge of experts in a number of domains was discussed above (pp. 9 - 15) as specific, technical, tacit, and life-span knowledge. Tacit knowledge was seen to be particularly difficult for experts to identify and describe. Experts are often unaware of the special nature of their knowledge or the special ways they use their knowledge to make judgments and decisions about their practice. It is the tacit nature of much of the knowledge of expert teachers which contributes to the difficulties inherent in the study of teacher expertness.

Eraut (1985) presents the problem this way:

The question persists as to how much professional know-how is essentially implicit, and how much is capable with appropriate time and attention of being described and explained. (p. 119)

Eraut’s definition of the question appears to be somewhat defeatist. The technical, codifiable knowledge of teaching practice is not the hallmark of the expert. It is the implicit knowledge that expert teachers possess that needs to be described and explained. The task of the researcher who aspires “to get inside the teachers’ heads” (Berliner, 1986, p. 9) is to access the very knowledge of the expert which is implicit.

The language of teachers. Explaining tacit knowledge and intuitive action is difficult because of the nature of this knowledge and action. It is also difficult because of intellectual demands with regard to skillful use of language (Eraut, 1985; Jackson, 1968).

In his seminal work about life in classrooms, Jackson (1968) comments on what he has found to be a general inability of teachers to describe their work. He concludes that “teacher talk” is characterized by (1) an absence of technical vocabulary, (2) conceptual simplicity, (3) a focus on physical and social reality, and (4) ambiguity in the teacher’s role (p. 143). Jackson had not, however, selected expert teachers for his study. If he had talked with expert teachers, would they have been articulate? Would they have been able to explain their practice and the sources of their expert knowledge?
Studies more recent than Jackson’s suggest that, if researchers want to identify the special knowledge of the expert teacher and if they want to find out how this knowledge was acquired, it is to expert teachers themselves that these researchers may profitably turn. But in their attempts to glean from teachers knowledge of their expertness, they can expect to be confronted with the problems of knowledge that may not be easily described and with teachers who may not be articulate. Berliner (1986) suggests, however, that the knowledge gained from expert teachers may be more readily available and more codifiable than many people think.

One way that it may be possible to learn about teacher expertness, then, is to access the knowledge of expert teachers. Another way that it may be possible to learn about teacher expertness is to learn about the nature of the experts themselves. In the first instance, researchers may find out what it is that expert teachers know that others do not know. In the second instance, researchers may learn why it is that expert teachers learn what others do not learn. To learn what experts learn is to learn about the wisdom of practice. To learn why experts learn what they do may be to learn about the wisdom of the expert. By identifying teachers who display some aspects of wisdom and looking for the characteristics of their wisdom which may be associated with their practice, it may be possible to increase understanding of the nature and development of expert practice.

WISDOM STUDIES AND THEIR GENESIS

One way to understand teacher expertness may be to explore the wisdom evident in the discussions of expert teachers. With this objective in mind, a review of studies of wisdom was undertaken. As a precursor to the wisdom studies, there was a review of adult cognitive development studies which preceded or are concurrent with recent studies of wisdom.
Studies of Adult Cognitive Development

An impressive range of research and theory concerning adult cognitive development has been generated by the work of Jean Piaget (Commons, Richards, & Armon, 1984; Mines & Kitchener, 1986; Rybash, Hoyer, & Roodin, 1986). Because of the seminal quality of Piaget’s studies of cognition, this literature review begins with a summary of his particular legacy, that is, his theory of developmental stages. Piaget posited four such stages. Particular attention is directed here to the fourth of these, the formal-operational stage, for it is this fourth stage that has aroused the interest of a number of researchers. The studies of these researchers, then, are briefly categorized. Studies of wisdom also emerge from the post-Piagetian studies.

The Piagetian Legacy

Piaget’s conceptualization of cognitive development has had a profound effect upon theory and research in psychology and education during the past thirty years (Brodzinsky, Sigel & Golinkoff, 1981; Commons, Richards, & Armon, 1984; Mines & Kitchener, 1986). Piaget’s study of what he called genetic epistemology began at a time when “the winds of the nature-nurture controversy blew hot and strong” (Evans, 1973, xxvi). Piaget did not align himself with either American environmentalist or European nativist psychology. Rather, he maintained that children, like the mollusks he had studied as a young doctoral student, are influenced reciprocally by environment and heredity. To test this assumption, Piaget studied the ways in which children at different age levels understand the physical, biological and social worlds. This focus upon the mental growth of children led him to a developmental model which consists of four stages or major periods of intellectual development. The stages are summarized as:

1. Sensorimotor stage (0-1 1/2 years): Emphasis on coordination of action; gradual connecting of means to reach goals.
2. Preoperational (representational) stage (2-6 years): Internalization of actions (representation in thought); use of symbols in play, language, and mental imagery; use of elementary functions of one-way relationships.

3. Concrete-operational stage (6-11 years): First use of reversible operations signified by conservation; thought structures connected to the concrete—concerned with relations among objects (seriation) and classes of objects (class inclusion).

4. Formal-operational stage (beginning around 11 or 12 and expanding during adulthood): Ability to deal with the possible; understanding of relations between relations; ability to verbalize rules used in solving problems. (Gallagher & Reid, 1981, p. 34)

Although Piaget was interested in the study of children’s thinking, his life-long goal was to understand the development of knowledge. Gallagher and Reid (1981) cite Inhelder, Sinclair, and Bovet (1974, p. 22) to make this point about Piaget’s commitment:

No adult is able to reconstruct his own cognitive development. Development is an unknown territory that can only be charted by studying children, whose actions and ideas will continue to surprise us. (p. 12)

And Piaget did indeed provide the rationale for post-formal studies of adult cognitive development:

The level of formal operations, being the highest level of development described by Piaget, is often thought of as the end point of development. It is not. Rather it is the level at which form is freed of content and the “opening up of possibilities” reaches its acme. (Gallagher & Reid, 1981, p. 174)

The legacy of Piaget, then, is not just the direction he has given to those who want to understand and educate children; it is also the provision he has made of a launching point for further studies of life-span cognitive development. “The development of formal operations, as described by Piaget (for example, Inhelder and Piaget, 1958), only prefigures important adult accomplishments” (Labouvie-Vief, 1984, p. 158). Models of adult cognition beyond Piaget’s stage of formal operations have consequently been developed and have been designated postformal operations.

Post-Piagetian Models of Adult Cognitive Development

It has been argued that “an adequate understanding of the psychological development of thought cannot be based solely on Piaget’s model of formal operations” (Commons,
Richards, & Armon, 1984, p. xv). In an attempt to understand the complex and creative reasoning of adults, researchers “are either offering elaborations of the model or reacting to the failures and limitations of it” (Mines & Kitchener, 1986, p. xi). The editors, Sigel, Brodzinsky, and Golinkoff (1981), assert that:

No theoretical system is complete or necessarily eternally valid. Scientific inquiry by its very nature is an open system. For our purpose, the critical issue is the way in which scientific inquiry has influenced Piaget’s theory. After some early efforts at replicating Piaget’s ideas, his theoretical formulations became increasingly pervasive among developmental psychologists. (p. 4)

For those theorists who choose to work within the Piagetian framework (Arlin, 1975; Basseches, 1979; Commons, Richards, & Kuhn, 1982; Koplowitz, 1984; Labouvie-Vief, 1982; Riegel, 1973; Sinnott, 1982), there is general agreement on some characteristics of adult thought. Kramer (1983) lists these common characteristics:

(1) an understanding of the relativistic, non-absolute nature of knowledge; (2) an acceptance of contradiction as part of reality, and (3) an integrative approach to thinking. (Kramer, 1983, pp. 91-92)

The adult who is guided by what Kramer calls relativistic thinking, conforms to Loevinger’s (1976) final stage of ego development which she calls the Integrated Stage, and to Kohlberg’s (1969) final stage of moral judgement with its orientation to “principles of choice” (p. 376). Sinnott (1984) notes that other theories of cognitive development do not cast doubt upon the theory of relativism and indeed many give evidence to support the existence of relativistic operations. She states that “convergence can be found between relativistic postformal thought and the conceptualizations of Koplowitz, Labouvie-Vief, Basseches, Arlin, and others” (p. 320)

Sinnott (1984) also refers to the common characteristics of theories of postformal thought when she speaks of:

the congruence among ideas developed by many thinkers working independently. This congruence is fortunate. It suggests that the general phenomenon of postformal operations exists and can be quantified and tested in diverse populations. (p. 321)
Amongst the scholars of postformal thought are those who take a contextual and functional view of cognitive development. These authors declare that:

researchers have generally neglected real-world problems encountered in everyday life. All too often, they have investigated adult cognition through the use of ecologically limited and personally noninvolving laboratory problems. (Rybash, Hoyer, & Roodin, 1986, p. 127).

Studies of real-world problems encountered in everyday life have led researchers of cognitive psychology to an investigation of wisdom:

As wisdom is quite a practical, down-to-earth phenomenon, investigators are forced to bring their theoretical musings and empirical research to scrutinize life. The various aspects of wisdom must apply to real people in real situations in real time. (Birren & Fisher, 1990, p. 331)

Although wisdom as a psychological construct is exceedingly elusive, it is currently a rapidly growing field of inquiry. Psychologists have in the past associated the study of wisdom with the field of philosophy and so have avoided the subject as being either too large a phenomenon for study, or being unapproachable through the empirical kinds of study which they favoured. In recent years, however, psychologists have been willing to accept a greater variety of research processes and so the study of wisdom is being accommodated in their field (Birren & Fisher, 1990).

**Wisdom**

Descriptions of wisdom have been traced to the Greeks, who found wisdom in the intellectual, moral, and practical life and a life lived in conformity with truth and beauty. The early Christian vision of wisdom was a life lived in pursuit of divine, absolute truth. The contemporary view is more likely to involve a scientific understanding of laws governing matter in motion (Robinson, 1990). Those who study wisdom have attempted to define the concept or at least to identify some of its elements. However wisdom is defined, it is either implicitly or explicitly characterized as desirable. It connotes behavior that is admired and encouraged.
Elements of Wisdom

Contemporary scholars define or describe wisdom in a number of ways: some, for instance, perceive it as cognitive expertness, some see it as also involving affect (Birren & Fisher, 1990). The elements of wisdom that have been identified in recent studies may be included in the categories of cognition, action, and integration.

Cognition. Most descriptions of wisdom include the presence of superior knowledge acquired through exceptional cognitive processes. Sternberg (1990) states that, in part, wisdom is a metacognitive style, and Csikszentmihalyi and Rathunde (1990) refer to it as a holistic cognitive process. Associated with cognition is the intellectual ability which is involved in reflective judgment (Kitchener & Brenner, 1990) and in problem finding (Arlin, 1990). Among those authors who particularly ascribe superior knowledge to wisdom are Baltes and Smith (1990) who emphasize the rich factual and rich procedural knowledge endemic to wisdom, and Chandler and Holliday (1990) who speak of the multidimensional quality of the knowledge of wisdom. Meacham (1983), on the other hand, defines wisdom as “a balance between increases in the amount that one knows and simultaneous increases in the recognition that there is much that one does not know” (p. 21).

Kitchener (1983) states that “in order to understand how wise and thoughtful decisions are made...the concept of epistemic cognition is essential” (p. 231). She explains that epistemic cognition is part of a “three-level model of cognitive processing”:

At the first level, cognition, individuals compute, memorize, read, perceive, solve problems, etc. At the second, metacognitive level, individuals monitor their own progress when they are engaged in these first-order tasks. At the third level, epistemic cognition, individuals reflect on the limits of knowing, the certainty of knowing, and criteria of knowing. (p. 222)

The definition of salience may also be seen as a definition of wisdom:

Salience is a perceptual stance or embodied knowledge whereby a person does not deliberately have to calculate which aspects of the situation are more or less important; they just appear as more or less important. People with a sense of
salience selectively ignore the less important aspects of the situation (from their learned perspective) and are sensitive to nuances that might influence the more significant aspects.... If the expert is to maintain or extend his or her expertise, that which is salient will necessarily be challenged and will thereforeshift as a result of new information and experience. (Benner, 1984, p. 298)

**Action.** Although Baltes and Smith (1990) in their definition of wisdom emphasize expert knowledge and good judgment, they assert as well that the knowledge and judgment are “in the domain, fundamental pragmatics of life” (p. 95). Birren and Fisher (1990) also include in their definition of wisdom its conative aspects which they describe as a “balance between the opposing valences of...action and inaction” (p. 326) and Csikszentmihalyi and Rathunde (1990) describe the cognitive process of wisdom as a guide for action.

**Integration.** The terms most commonly used in a number of studies of wisdom are integration and balance. Labouvie-Vief (1990), for instance, refers to an integrated balance between outer and inner attributes, the outer attributes being objective and logical, the inner ones being subjective and organismic. Orwoll and Perlmutter (1990) refer to wisdom as a multidimensional balance or integration of knowledge with social concerns and Pascual-Leone (1990) includes in his definition all aspects of personality. It is the integration of relativistic modes of thinking, affect, and reflection that are emphasized by Kramer (1990). Birren and Fisher (1990) define wisdom as “the integration of the affective, conative and cognitive aspects of human abilities in response to life’s tasks and problems” (p. 326).

Closely related to definitions and descriptions of wisdom are the traits ascribed to wise persons.

**Traits of Wise Persons**

Meacham (1983) has generated a list of descriptors of wise people:

1. Wise people should not be expected to differ from unwise people in the particular facts that are known
2. Wise people ought to differ from unwise people in their actions
3. Wise people ought to excel at asking questions
4. The wise person ought to deny being and feeling wise, for the wise person appreciates how much he or she does not yet know. (p. 18)

Other traits of wise persons include those associated with intelligence, personality, and age. The wise person is seen to be intelligent, to be reflective, and to make good judgments (Chandler & Holliday, 1990; Csikszentmihalyi & Rathunde, 1990; Kitchener & Brenner, 1990). The wise person is also seen to probe knowledge and to be able to find problems (Arlin, 1990). It is also said that wise persons tend to solve their own problems (Kramer, 1990).

The wise person has a highly developed personality (Orwoll & Perlmutter, 1990). One aspect of this personality is empathy (Csikszentmihalyi & Rathunde, 1990) and another is the desire to learn good communication skills (Chandler & Holliday, 1990). The wise person, it is suggested, welcomes ambiguity (Sternberg, 1990).

Wisdom has commonly been associated with older people; indeed, wisdom has sometimes been regarded as compensation for lost youth (Birren & Fisher, 1990, p. 324). Research has not, however, found firm grounds for supporting this contention.

Identifying and Assessing Wisdom

The work of Baltes and his associates, conducted at the Max Planck Institute for Human Development and Education in Berlin (1973, 1976, 1984, 1986, 1987, 1988, 1990, in press), involves studies of wisdom “as an expertise associated with knowledge and strategies of life planning and life review” (Baltes & Smith, 1990). These studies are of particular interest, first because of the identification of five wisdom criteria which embrace components of many descriptions of wisdom and wise persons, and because the studies provide a framework for assessing wisdom, a framework which may be adapted for use in a variety of contexts.
This set of five criteria descriptive of wisdom have been derived from cognitive psychology and life-span theory:

(1) richness of factual knowledge about life; (2) richness in procedural knowledge about life; (3) life-span contextualism; (4) relativism associated with an awareness of variations in values and life priorities; and, (5) the recognition and management of life’s uncertainty. (Baltes, Smith, Staudinger, & Sowarka, in press, p. 9)

Factual knowledge in this model may be considered the data base of wisdom and procedural knowledge the ability to deal with the information in the data base. Contextualism involves relationships and events that are embedded in multiple situations and conditions and can involve tension and conflict. Relativism in this model is consistent with Kramer’s description of relativistic thought: an awareness and respect for the personal value systems of others and an ability to offer alternative problem definitions and solutions. Sinnott (1984) also emphasizes the development in adults of sensitivity to interpersonal relations and the acceptance of “best fit” solutions to problems (cited in Lee, 1989, p. 252). The final criterion of wisdom in this model is the ability to recognize that situations are by nature uncertain, but they are manageable and can be dealt with. According to these authors, to be judged wise, the person must manifest all five criteria (p. 11).

Not only have Baltes and his associates provided a set of criteria descriptive of wisdom, they have also developed a framework for assessing the presence of the wisdom criteria in certain protocols. The protocols which were used in the studies at the Max Planck Institute were generated by young, middle-aged, and older adults who were asked to “think aloud” about questions involving various life problems. This research framework is not seen to be restricted to studies of life dilemmas:

As long as verbal protocols about the domain of wisdom or related topics associated with the pragmatics of life are available, they can be evaluated using the proposed set of five criteria (rich factual knowledge, rich procedural knowledge, contextualism, relativism, uncertainty) as a yardstick. (Baltes et al., in press, p. 20)

Studies of wisdom, then, have provided definitions and descriptions of wisdom and of wise persons. One group of studies has offered a framework which may facilitate further studies of wisdom in a number of domains.
Wisdom and Expertness

A generalized comment about the theories and research leading to an understanding of wisdom may also serve as a generalized comment about studies of expertness. Both the development of expertness and the acquisition of wisdom are understood to be part of adult, rather than pre-adult life, and both are believed to develop over a long period of time (Baltes & Smith, 1990; Benner, 1984; Berliner, 1986; Dixon & Baltes, 1986). Furthermore, an understanding of the kind of wisdom that experts in a particular domain possess would not only increase our understanding of expertness, but also increase our knowledge about wisdom. And a study of the wisdom that expert teachers possess may provide a better understanding of the expertness of teaching practice and may also provide further knowledge about wisdom.

SUMMARY

A review of two lines of research has been undertaken in this chapter: first, research about expertness and second, research about wisdom. A tabular summary of the chapter is presented in Summary 2.1.

Studies of expertness were first considered as they applied to a number of domains, with the findings from these studies classified as The Knowledge of the Expert and The Use of Expert Knowledge. The knowledge of the expert was usually found to be specific, and in part technical, in part tacit. Expert knowledge can span a lifetime. Expert knowledge is used to solve ill-structured problems and involves processes which are different from those used by novices. Studies of teacher expertness have for the most part been observation studies. Those studies which have recorded teacher thoughts have been thinking aloud techniques, stimulated recall, policy capturing, and journal keeping. Characteristics of expert teachers were classified as knowledge, patterns in storing knowledge, experience, and the use of routines. Researchers have found some problems
when they seek to understand teacher expertness, particularly the difficulty that results from tacit knowledge and from the inarticulateness of some teachers.

**Summary 2.1. Studies of expertness and wisdom**

**EXPERTNESS**

Studies of expertness include descriptions of

- the knowledge of the expert—often specific, may be technical and/or tacit, and may span lifetimes,
- the use of expert knowledge, to solve ill-structured problems, involving processes different from those used by novices.

Studies of teacher expertness disclosed

- several methods of inquiry—thinking aloud, stimulated recall, policy capturing, and journal keeping,
- described characteristics of expert teachers—knowledge, patterns in storing knowledge, experience, the use of routines, and
- problems involved in having teachers explain their expertness—the nature of expert knowledge and the language of teachers.

**WISDOM**

Studies of cognitive development are precursors to studies of wisdom. Cognitive development studies, often based on Piaget’s developmental stages, include post-Piagetian studies.

Studies of wisdom presented

- certain elements of wisdom, including cognition, action, integration,
- traits of wise persons that were classified as intelligence, personality, and age, and
- a means of identifying and assessing wisdom with five wisdom criteria and a framework for assessing wisdom.

Studies of wisdom were traced to adult cognition studies based on Piaget’s four stages of development: the sensorimotor stage, the preoperational stage, the concrete-operational stage, and the formal-operational stage. As they attempt to understand the reasoning of adults, researchers offer elaborations or refinements of Piaget’s model. Amongst these elaborations are studies of wisdom. These particular studies have provided insight about certain elements of wisdom and certain traits of wise persons. Included in the elements of wisdom are cognition, action, and integration, and the traits of wise persons
have been classified as intelligence, personality, and age. A means of identifying and assessing wisdom with five wisdom criteria was seen to offer a model for further research about wisdom in particular domains.

The investigation of the relevant literature suggests that, in the study of the nature of teacher expertness, it would be profitable to pursue two lines of inquiry: first, to attempt to elicit from expert teachers descriptions of their expertness, and second, to attempt to study the wisdom that is inherent in expert teachers. In the following chapter, a design is presented for undertaking these parallel investigations.
CHAPTER 3

A FRAMEWORK FOR EXPLORING TEACHER EXPERTNESS

The purpose of this study is to explore the nature of teacher expertness and how it is attained. It was concluded at the end of Chapter 2 that, in order to achieve this purpose, it would be profitable to pursue two lines of inquiry: first, to elicit from expert teachers descriptions of their expertness and second, to attempt to study the wisdom that may be revealed in these descriptions. The present chapter uses these two approaches to provide a framework for the study. It is in three sections. The first deals with the idea of paying attention to expert teachers; the second deals with the use of the concept of wisdom; and the third summarizes the conceptual framework of the study by the use of a diagram.

LISTENING TO EXPERT TEACHERS

Studies of the performance of expert teachers and of the thoughts these teachers have with regard to their performance have been used to form conclusions about effective teaching practices and to provide in part for the pre-service and in-service training of teachers (see above pp. 18-19). Some have assumed that more conclusions that would improve teaching practice could be reached if it were possible to have direct access to the knowledge of expert teachers and to the bases for the judgments and decisions that expert teachers make (Berliner, 1986; Shulman, 1986). It may also be assumed that one means of accessing this knowledge and of understanding the bases for these judgments and decisions would be to ask expert teachers what constitutes their expertness and what was their means of attaining it. Although teachers have been asked to comment on certain aspects of their performance, they have not, for the most part, been asked to explain the full range of the thought processes that they bring to bear in their work with students (Clark & Peterson,
1986). Indeed, seldom have expert teachers been asked about the nature of their expertness in an attempt to improve the performance of their less expert colleagues (Glickman, 1989; Yonemura, 1982). This neglect of expert teachers as a means of improving teaching practice may be the result of two particular difficulties. The first difficulty relates to the identification of expert teachers and the second to accessing their understanding of their expertness.

**Identifying Expert Teachers**

Some teachers, like some tennis players and some piano players, are experts and some are not. There is often a greater reluctance to assess the performance of one teacher as expert and another as non-expert than to assess the expertness of one tennis player or piano player over another. One explanation for this discrepancy may be that the criteria for judging the expertness of the tennis player and the piano player are less complex than the criteria for judging the expertness of a teacher. Although tennis players and piano players are judged to be experts according to more than one criterion (Is the tennis player’s game just a winning one or is it also an elegant one? Is the piano player’s performance merely technically impressive or is it also moving?), the criteria for assessing teaching performance are comparatively lengthy and varied. The multiplicity of the criteria for judging teachers as experts or non-experts makes the judgment itself difficult and the justification for the judgment difficult also.

The task of identifying expert teachers is difficult, then, because of the criteria used in their identification. What is perceived as a greater difficulty is the way teachers themselves have come to view the teaching profession as one in which no teacher is to be judged better than any of his or her colleagues. Attempts to identify “master teachers” for recognition or to implement “merit pay” systems have been, for the most part,
unsuccessful. Teachers are very reluctant to designate, at least in a formal way, any teacher as an expert unless all teachers are designated experts.

On the other hand it is also difficult to identify expert teachers because of the number of people who may be considered, or may consider themselves to be, viable judges of teacher expertness. Referees are assigned to judge winners of tennis games and adjudicators are responsible for selecting winners of piano competitions, but a much wider range of people—students, parents, principals, supervisors, and researchers—are prepared to make judgments about the expertness of teachers.

One problem, then, in accessing the wisdom of the practice of expert teachers, is to identify the experts. This problem can hardly be seen as insurmountable: “Expertise stands out; the entire history of civilization just confirms that” (Bereiter, 1986, p. 24). The process required for the selection of expert teachers needs careful consideration, but expert teachers can be identified. Indeed, they are often selected for various assignments: to curriculum committees, for workshop presentations, as student teacher sponsors, and as subject co-ordinators.

Accessing the Expertness of Teachers

Researchers have discovered many of the technical skills that are required for competent performance in the classroom; they have identified some general principles about the use of these skills; and they have learned about some of the disciplinary competencies that are required in order that teachers may instruct students successfully (Kennedy, 1987). Despite the positive results of these investigations of teacher competencies, there are aspects of the performance of expert teachers that remain inscrutable (Berliner, 1986; Shulman, 1986). A consideration of the elements of expertness that are understood, technical skills, general principles, and a broad knowledge base, may at least reveal the nature of those elements that are not understood.
During the 1970s and early 1980s, much attention was given to the particular technical skills that were needed for teachers to be effective in the classroom (see above, p. 18). Although it was possible to identify these skills, and although they were easily classified and presented in pre-service and in-service programs, it was often not at all easy for teachers to determine when to use particular skills or whether to use them at all. For instance, the discreet use of praise and blame was found to facilitate learning; however, the basis for the decision about whether or not to use either praise or blame in a certain situation is not easily explained and is not thoroughly understood. Yet it is the ability to decide upon the timeliness of using such a technical skill that is part of the wisdom of the expert teacher and it is this ability that is not easily described (Broudy, 1984). The expert teacher is also aware that not all techniques serve all teachers well. Part of the wisdom of practice lies in the ability to select those techniques which are in harmony with a one's own style of teaching. Again, the basis of such a conviction is not easily ferreted out. The acquisition of technical skills is necessary in order to achieve competency in the classroom, but the possession of these skills does not in itself provide for teaching expertness. It is the wise use of these skills that is the hallmark of the expert and that is difficult to explain.

Researchers have found that some general principles are helpful as guides for teachers in their work with students. These general principles help teachers select the techniques that they can successfully apply in certain situations (see above, p. 21). Teachers learn to interpret a situation as a particular case of a familiar category and so they can apply the appropriate skill or skills required in the situation. The difficulty, however, is that there are many variables in each situation which make the application of a general principle difficult. Nor is it easy to select the right general principle (Kennedy, 1987). What is not understood is the process by which expert teachers are able to identify the general principle that will apply in certain circumstances.

It has been discovered that expert teachers tend to have accumulated a broad store of knowledge, both of the discipline within which they teach and of the rudiments of teaching
practice itself (see above, p. 20). The extensive knowledge of the experts does not, however, provide them with the wisdom that is required to decide when, or whether or not, to present certain information to students or to know what will be the best means of helping these particular students to understand and accept this information at this time (Martin, 1981). It is in part the ability to make decisions such as these that separate the expert from the non-expert, and it is this ability of the expert that is not understood.

When we examine the elements of teaching expertness that are understood, technical skills, general principles, and a broad knowledge base, and what it is that is not understood, when, or whether or not to apply these elements, the problem becomes less mysterious, although perhaps not more easily solved. What is understood is the explicit knowledge base of teaching practice: the content and skills which are required for competency. What is not understood is the manner in which this knowledge is used to solve ill-structured problems. The elements that are not understood have been classified as implicit or tacit knowledge (see above, pp. 12 - 14).

Implicit or tacit knowledge is not easily explained or described (Benner, 1984; Eraut, 1985; Polanyi, 1975; Wagner & Sternberg, 1986). The difficulty of understanding and transmitting tacit knowledge, then, is indigenous to the knowledge itself. But that difficulty may be compounded by the lack of ability among teachers to be articulate about their practice. There is evidence that in some colleges in the United States "education majors rank significantly below other professional majors on measures of scholastic achievement, intelligence, and grades" (Glickman, 1985) and that "there is a strong negative relationship between measured academic ability and retention in teaching" (Schlechty & Vance, 1981, cited in Glickman, 1985). As well as lacking superior academic ability, teachers may suffer from a deficiency with regard to a professional language (see above p. 23). The study of teacher expertness, however, involves the input of those who are highly ranked in their profession, those who may be of superior academic ability and
who may be articulate about their work. Clark and Peterson (1986) summarizing a review of studies of teachers’ thought processes, state that:

At the very least, we can say that teachers do seem to hold implicit theories about their work and that these conceptual systems can be made more explicit through a variety of direct and indirect inquiry techniques. (p. 291)

It is assumed that, in an attempt to make explicit the implicit knowledge of expert teachers, the “variety of direct and indirect inquiry techniques” that Clark and Peterson suggest may also be extended to include a variety of direct and indirect analytical techniques. Although the details of the analytical procedures will be dealt with in Chapter 4, it is worth noting here that it will be necessary to look behind or beneath the words of the teachers as much as at the words themselves. The present study was designed, therefore, to enquire directly and indirectly about the nature of teacher expertness and also to analyze the data with regard both to what was said directly and what was implied.

Summary

The first line of inquiry undertaken in the present study was to elicit from expert teachers descriptions of their expertness. In order to accomplish this inquiry, the experts themselves needed to be identified, a task that was seen to require some care, but that was clearly possible. It was seen to involve the use of the criteria by which teachers can be judged to be expert, and the choice of those who could apply the criteria. The second task was to access the teachers’ descriptions of their expertness, a task which required that not only the explicit, but the implicit knowledge of expert teachers be described and explained. Both direct and indirect kinds of inquiry were needed in order to access this knowledge. Also needed were both direct and indirect methods of analysis. The methods of inquiry and analysis are presented in Chapter 4.
DISCERNING THE WISDOM OF EXPERT TEACHERS

Evoking from expert teachers insight about their expertness, the first project in the present study, was intended as a means of understanding the wisdom of teachers' *practice*. Discerning the very wisdom itself of the expert teachers, the second project in the present study, was intended as a means of understanding the nature of the *person* who is an expert teacher. The choice of the concept of wisdom as a means of understanding the nature of the expert needs clarification.

Choosing Wisdom to Study Expert Teachers

Research about the nature of a person has been approached from a number of perspectives such as studies of personality, of cognitive ability, or of adult learning. In the present study, the construct of wisdom was chosen as a means of uncovering the nature of the expert teacher because of two particular attributes ascribed to wisdom: first, that wisdom includes many diverse elements and second, that wisdom is "a practical, down-to-earth phenomenon" (Birren & Fisher, 1990, p. 331). The elements that authors have included in descriptions of wisdom were seen to fall under three classifications: cognition, action, and integration (see above, pp. 30 - 32). Although authors do not altogether agree upon the elements which wisdom may include, they do agree that wisdom is multidimensional and that it is complex (Birren and Fisher, 1990, p. 331). Teaching practice is also considered to be a multidimensional and complex process (Shulman, 1986). It is assumed that, in an attempt to understand the expertness of those who master such a process, what is required is a construct that is broadly based and includes a diversity of elements. Wisdom has been used as such a construct.

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1In this explanation of the concept of wisdom and its application to the study of teacher expertness, Birren and Fisher, 1990, have been quoted extensively. These authors provided an integration of the approaches and viewpoints of thirteen authors who contributed to Robert J. Sternberg's recently edited collection, *Wisdom: Its Nature, Origins, and Development* (1990)
The second reason for choosing the concept of wisdom to inquire about the nature of expert teachers was that wisdom studies focus upon matters of everyday life. "The various aspects of wisdom must apply to real people, in real situations, in real time" (Birren and Fisher, 1990, p. 331). The present study is meant to be a practical one, exploring the expertness of teachers who are employed in schools at the present time. It is anticipated that the study of the wisdom of these experts will not only reveal knowledge of their expertness, but will also add to an understanding of wisdom, in particular, because of the practical nature of the study.

In this study, then, the concept of wisdom was selected as a means of understanding teacher expertness because of its multidimensional character and because of its application to everyday life. The multidimensional characteristic of the concept of wisdom gave rise, however, to difficulties involved with bounding the study. Not all of the elements of wisdom identified in the research could be considered in the present study without the project becoming unwieldy. The problem was to select from the range of elements included in descriptions of wisdom those elements which might be used effectively to uncover the nature of expert teachers.

Selecting a Framework

Researchers have studied a number of aspects of wisdom in the past decade. The focus of some of the research studies are summarized in Table 3.1.

Arlin’s (1975, 1984, 1990) studies of post-formal reasoning have focused particularly upon the ability of the individual to define problems and to solve them. Baltes has identified five criteria (factual knowledge, procedural knowledge, contextualism, relativism, and uncertainty), with which to analyze the wisdom in adult perceptions of simulated materials about life planning, review, and managements tasks. Several authors have investigated the integration of certain elements of wisdom: Labouvie-Vief (1982,
1984, 1990), the integration of reflection and critical thinking; Orwoll and Perlmutter (1990), the integration of cognition and affect. Kitchener and Brenner (1990) have concentrated upon a longitudinal study of reflective judgment, and Sternberg has considered wisdom as good reasoning ability, sagacity, and perspicacity.

Table 3.1. Recent Studies of Wisdom

<table>
<thead>
<tr>
<th>AUTHOR</th>
<th>FOCUS OF STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitchener and Brenner (1990)</td>
<td>Reflective judgment</td>
</tr>
<tr>
<td>Orwoll and Perlmutter (1990)</td>
<td>Integration of cognition and affect</td>
</tr>
<tr>
<td>Sternberg (1990)</td>
<td>Reasoning ability, sagacity, perspicacity</td>
</tr>
</tbody>
</table>

Of these approaches, it was the work of Baltes and his associates which was selected for use in the present study. The Baltes model was attractive because of the five criteria it embraced, criteria which were seen to examine facets of wisdom possibly analogous to elements of teaching expertness. The first two criteria, factual knowledge and procedural knowledge, have been classified as the systematic knowledge base of the professional (see above, p. 11), and may be considered basic to the development of teaching expertness. The criterion, contextualism, takes into account the ability of a person to consider a problem within the context of a number of impending circumstances and conditions. Relativism is meant to suggest an awareness of alternate value systems and an ability to propose more than one solution to a problem. The final criterion, uncertainty,
describes the person's ability to accept ill-structured problems, to be aware that such problems may not be solvable and that, if they are, more than one solution may be possible. The criteria appear to be analogous to the elements of expertness which were seen to be difficult to describe, the tacit knowledge of the expert (see above, pp. 41-44). Investigating the wisdom of the expert through these five criteria may result in a better understanding of the wisdom of practice.

The model was attractive, then, because of the criteria. It was also attractive because it offered a framework which could be used with a variety of protocols associated with what has been called "the pragmatics of life" (Baltes et al., in press, p. 20). The process by which the model was adapted for use in the present study is explained in Chapter 4.

Summary
The second line of inquiry in the present study was undertaken in an attempt to study the wisdom that is inherent in expert teachers. The concept of wisdom was chosen as a means of understanding the nature of the expert teacher because it is a concept that embraces many, diverse elements and because it is found in down-to-earth, practical situations. The multidimensionality of the concept prescribed some limiting of its application. By using the model of Baltes and his associates (in press) it was possible to limit the study to manageable proportions. In particular, the model was selected because of the five criteria it espoused and because of the framework it provided for the analysis of various protocols, in the present study, protocols about the nature of teacher expertness.

SUMMARY OF THE FRAMEWORK FOR THE STUDY

Two perspectives emerged from studies of teacher expertness: first, studies about expert teaching practice and second, studies of cognitive development. The lines of inquiry that evolved from these perspectives are displayed in Figure 3.1.
Figure 3.1. Framework for the Study
The studies of expert teaching practice included observation studies and studies of teacher thoughts about what was observed. The studies of cognitive development, emerging from Piagetian and post-Piagetian research, led to studies of wisdom and the studies of wisdom included a model (Baltes et al., in press) which identified five wisdom criteria. In Figure 3.1 the courses of the two perspectives for studying teacher expertness are indicated by solid lines. The broken lines in the diagram indicate the shape and direction of the present study. A more complete understanding of teacher expertness was seen to be possible with an investigation of the explicit and implicit knowledge of expert teachers. Such an investigation was undertaken as a means of uncovering the wisdom of expert teaching practice. At the same time, inquiry about the nature of expert teachers themselves was intended to provide insight about the wisdom of expert teachers.

The fundamental questions which the study was designed to answer are:

1. *Is it possible to access the knowledge of expert teachers and so to increase understanding of the nature of teacher expertness?*

2. *Is it possible to discover what constitutes the wisdom of expert teachers and so to increase understanding of the nature of teacher expertness?*
CHAPTER 4

RESEARCH METHOD

The central purpose of this study, to explore the nature of teacher expertness and its attainment, was presented in Chapter 1, and in Chapter 2, studies of expertness and of wisdom were reviewed. The design of the study was presented in Chapter 3. The plan was to follow two lines of inquiry: an investigation of teachers' explicit and implicit knowledge of expert teaching practice and an investigation of certain aspects of the wisdom of expert teachers. Chapter 4 is an account of the development of an instrument to accommodate both lines of inquiry, and of the data collection and analysis procedures that were established.

INSTRUMENT DEVELOPMENT

Data for the present study were collected through interviews with expert teachers, interviews designed to elicit descriptions of the practice of expert teachers and also to provide insight about the nature of the experts themselves. The interview technique was chosen as a research method because it gave the interviewer an opportunity to seek elaboration or clarification of items after they were presented by the respondent and so permitted the collection of a depth of information (Borg & Gall, 1983; Wiersma, 1986). A small exploratory study was undertaken as a precursor to developing an interview format that would serve the purposes of the study.

The Exploratory Study

A standard beginning was determined for the interviews in the exploratory study. In order to encourage teachers to focus upon their own practice and to discuss this practice in their
own terms, teachers were asked about the last lesson they had taught—what was the subject of the lesson and what was the grade level of the students involved in it. If the last lesson was not one that would be appropriate for the discussion, if, for instance, the last period had been spent testing, the teacher was asked to identify another lesson as an initial focus for the interview.

Once the general nature of the target lesson had been clarified, the teacher was asked to describe some aspect of the lesson that was pleasing, that the teacher believed was successful. It was then that the teacher was asked to explain the particular teaching skill that brought about this result and to discuss the acquisition or development of the skill. Teachers, encouraged by comments and probes, were asked to discuss their way of working, their reasons for working this way, and the development of the knowledge and skill required to work this way. This approach was used, first, to induce teachers to centre their discussions upon their own practice and second, to acquire rich data through the accumulation of comments fashioned from a variety of experiences.

For this exploratory study, three teachers were interviewed. The conversations were audio-taped and transcribed for analysis. The researcher considered the interviews to have been successful to the extent that the teachers seemed to be enthusiastic and appeared to enjoy discussing their work. And it had been possible to elicit from the teachers their reflections on their teaching practice. When an attempt was made to analyze the protocols in depth, however, the information acquired from the preliminary interviews was seen to be incomplete.

The protocols from the exploratory study were examined to see what information they provided that would accommodate the two-fold investigation included in the study: (1) descriptions of the expert practice of teachers and (2) evidence of the presence of the five criteria of wisdom identified by Baltes and his associates (in press). Information on the second line of inquiry was not easy to see in these exploratory protocols and it was
therefore concluded that some direct questions should be added to the interview to remedy this deficiency.

The first addition concerned descriptions of expert teaching practice. The open-ended approach that had been used afforded teachers an opportunity to discuss their own expertness and its attainment. Their subjective responses provided rich data. The data were considered to be incomplete only with regard to their lack of some objective focus. To provoke this objective account of teacher expertness, a direct question was indicated that would elicit from teachers their objective view of teaching expertness. The researcher concluded that the addition of such a question would provide a broad array of descriptions of expert practice. The question appears as the sixth of the interview questions that follow (see p. 59).

The need for additions to the interview instrument was more evident with regard to the second line of inquiry than the first. An extract from one of the protocols from the exploratory study and an attempt to analyze it illustrate the requirements:

I taught some Socials Eight and I taught some Geography Ten and Psych. Psych was always a lot of fun. Grade twelve. And my curriculum, so it was always fun—Mostly because it connected so well

with the kids. They like it. It was something they were interested in. So once you’ve got that hook, you can go anywhere you want to go.

Interviewer: Well, when you would go anywhere you would want to go, what are some of the ways you would go? What do you mean by that?

Go anywhere you want to go. Well, for me, I could go in, I could explore different facets of human behaviour. I could come up with an insight, something that I thought was interesting. We had a textbook that provided us with a basic structure and direction and provided us with some topics to look at, but as we pursued what the textbook had to say about some aspect of behavior, if a student or myself or somebody came up with an insight—I remember one particular incident—we were talking about parent/child relationships and the notion of punishment came up as a part of that relationship, and I had a flash that I thought was wonderful, about how do you judge appropriate punishment. Well, it was fun to be able to play around with that for awhile, to see how the kids felt. Or else a kid would obviously come to class with a problem, not that we did any counseling, but you could tell from the conversation, you know, that something we were talking about in the curriculum had struck a chord with the kid. The kid wanted to see this pushed a little bit further and we’d talk about it a little bit. That kind of flexibility with kids who are tuned in and turned on to the subject area is always fun.
This extract from one of the protocols provides evidence of the presence of at least some of the criteria. For instance the criterion, *procedural knowledge*, may be evident in the statement, “So once you’ve got that hook, you can go anywhere you want to go” (line 5), and the criterion, *relativism*, involving alternative problem definitions, may be indicated when the teacher spoke of noticing that “something we were talking about in the curriculum had struck a chord with a kid...and we’d talk about it a little bit” (line 23). Some statements, however, appeared to give evidence of more than one criterion: “I could come up with an insight” (line 9 -10) might be evidence of *procedural knowledge*, the teacher’s way of working in the classroom, or *contextualism*, knowledge of contexts relevant to teaching problems. There was ambivalence, then, inherent in the analysis of some of the comments that were acquired in the open-ended interview. It also became evident that there was no assurance that all of the five criteria would be touched upon by a respondent.

The researcher decided that, in order to overcome the difficulties in exploring the presence of the five wisdom criteria, it would be necessary (1) to have an expanded definition of the criteria as they were to be applied to the study of expert teachers, (2) to write some specific questions for each of the criteria, and (3) to set out guide-lines for interpreting the responses.

**The Wisdom Criteria and the Expert Teacher**

Baltes and his associates have set out five criteria for evaluating wisdom-related knowledge:

1. Richness of factual knowledge about life

2. Richness in procedural knowledge about life

3. Life-span contextualism: High-level contextualistic knowledge about fundamental life pragmatics is defined as involving knowledge about the possible set of contexts relevant to life problems, knowledge of ontological relationships, knowledge about tensions between contexts, and knowledge about life-span changes in the relative importance of contexts
4. Relativism: Evidence that subjects maintain a certain personal detachment from the problems, imagine alternative problem definitions and solutions, and empathize with the differing values attributed to fictitious characters.

5. Uncertainty: Focus is both on the recognition of uncertainty and on its management. (Baltes et al., in press, p. 9)

For use in the present study, the following interpretation of each of the wisdom criteria was made.

**Criterion #1: Rich evidence of factual knowledge.** The factual knowledge component of wisdom may be assumed to be knowledge of the curriculum established by the Ministry, the school district, or the school. The term curriculum is used in this study to describe “the organized pattern of learning events that actually occur when students and teachers meet” (Gibbons & Norman, 1987, p. 105) or, similarly, “a structured series of learning outcomes” (Lundgren, 1987, p. 120). Knowledge of prescribed textbooks and resource materials may be included as part of curricular knowledge. To be judged “rich”, there would be evidence that the teacher has special curricular knowledge which has enabled him/her to develop new curricula or to adapt the prescribed one to meet the particular needs of students.

**Criterion #2: Rich evidence of procedural knowledge.** Baltes’ term, “procedural knowledge” may be interpreted for this study as descriptive of teachers’ ways of proceeding or working in the classroom, that is, their instructional skill. Teaching methods, techniques, or strategies may be included in this classification. “Richness” of procedural knowledge about teaching would be indicated by statements descriptive of “a personal skill acquired through practical experience” (Polanyi, 1975, p. 31). The protocols may indicate that subjects are ingenious in their classroom work and that they are able to solve novel teaching problems.
Criterion #3: Rich evidence of contextualism. Life-span contextualism, the third criterion, may be translated as knowledge about contexts relevant to teaching problems, knowledge of ontological relationships, knowledge about tensions between contexts, and knowledge about changes in the relative importance of contexts. Statements considered rich in contextualism would discuss teaching as involving more than that which is bounded by the classroom: work with colleagues in and beyond the school, extracurricular work with students, attention to special needs of students, contact with parents, relationships and experiences outside of teaching, and the politics of education.

Criterion #4: Rich evidence of relativism. For the purposes of this study, evidence of relativism will be recognized in subjects who maintain a certain personal detachment from problems, imagine alternative problem definitions and solutions, and empathize with the differing values of students, colleagues, and administrators. Strong evidence of relativism in the protocols may be indicated by statements about empathy for students, by reflective discussions of teaching methodology and techniques, by willingness to question apparently incontrovertible lore, by allusions to exchanges of ideas with other teachers or administrators, by reflections upon what has happened in the classroom, or by references to mentors or role models.

Criterion #5: Rich evidence of uncertainty. The final criterion, uncertainty, will be perceived when there is a focus on both the recognition and acceptance of uncertainty and the management of situations where this uncertainty exists. Wisdom may be indicated when the subject comments upon her/his “confidence in what is known and doubts regarding what is not yet known” (Meacham, 1983, p. 21).

With these descriptions, evidence of the five wisdom criteria could be more readily identified than had been possible when an attempt was made to analyze the protocols in the
exploratory study. It was also necessary to find a means of giving each interviewee an opportunity to address each of the criteria.

**The Interview Questions**

Five questions pertaining to the wisdom criteria were formulated. These questions were adapted from a manual for the collection and rating of life planning protocols developed by Smith and Baltes (1987) for the *Wisdom and Expertise Project* of the Max Planck Institute for Human Development and Education. They are numbered to correspond to the five wisdom criteria. A sixth question was formulated to evoke direct descriptions of expert teaching practice (see Table 4.1).

**Table 4.1. Questions Relative to the Wisdom Criteria.**

<table>
<thead>
<tr>
<th>CRITERION</th>
<th>QUESTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 Factual knowledge</td>
<td>Have there been many changes in the curriculum in your teaching area in the last five years? (If “Yes”) What are these changes?</td>
</tr>
<tr>
<td>#2 Procedural knowledge</td>
<td>Have your teaching methods or techniques or your ways of working in the classroom changed very much since you began to teach? (If “Yes”) Please explain some of these changes. (If “No”) Why have there not been changes?</td>
</tr>
<tr>
<td>#3 Contextualism</td>
<td>What change is needed for students and teachers to be more successful in the schools of tomorrow than they are in schools today?</td>
</tr>
<tr>
<td>#4 Relativism</td>
<td>Suppose that a teacher in your department tells you that he is “burned out”, that he no longer enjoys teaching, but, since he has a family to support and is fifteen years away from retirement, he must continue to teach. He asks your advice. If this is all the information you have about the situation, what advice would you give him?</td>
</tr>
<tr>
<td>#5 Uncertainty</td>
<td>Do you think there is a right way to teach your subject?</td>
</tr>
</tbody>
</table>
The interview format was now complete, with the standard beginning described above (see p. 53), and the six questions to follow. The complete interview instrument is recorded in Appendix A. What still needed to be developed were guidelines for assessing evidence of the wisdom criteria in the responses to the first five questions.

**Interpreting the Responses**

In order for there to be a consistent interpretation of the responses to the first five questions, it was decided to assess the evidence of wisdom that the responses yielded according to a seven-point scale, extending from a rating of one for little or no evidence of wisdom to a rating of seven for an ideal response. Guidelines for assessing wisdom at scale points one, four, and seven, were developed for each of the criteria (see Table 4.2). These guidelines were developed from the work of Smith and Baltes (1987).

For the criterion, *factual knowledge*, a response that indicated a lack of knowledge of the curriculum and its development yielded a rating of one; indication of some knowledge of the subject area, but without an indication of knowledge of new developments, yielded a rating of four; and a response that revealed in-depth knowledge of the curriculum in the subject area and a keen awareness of recent developments in the field, yielded a rating of seven.

Similarly, responses to the second question about the criterion, *procedural knowledge*, yielded ratings of one through seven with a range of comments from those displaying no concern about solving teaching problems or finding alternate ways of working with students (one) to those indicating a depth of knowledge about teaching procedures and an ability to apply this knowledge to classroom situations (seven).

In order to yield a rating of seven, the criterion, *contextualism*, required that the response give the impression of great awareness of the many factors that affect teachers and students and their interaction in classrooms; with little such impression, the rating was one.
<table>
<thead>
<tr>
<th>CRITERION</th>
<th>RATING</th>
<th>GUIDE-LINE FOR RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factual Knowledge</td>
<td>1</td>
<td>Lack of knowledge of the curriculum and its development</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Some knowledge of subject area, but knowledge is limited and teacher has not kept abreast of new developments</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>In-depth knowledge of curriculum in subject area and is keenly aware of recent developments in the field</td>
</tr>
<tr>
<td>Procedural Knowledge</td>
<td>1</td>
<td>Not concerned with solving teaching problems or finding alternate ways of working with students</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Can talk in detail about life in classrooms, but is not prepared to take responsibility for finding solutions to the difficult problems inherent in teaching students in schools</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Appears to have a depth of knowledge about teaching procedures and to be able to apply this knowledge to classroom situations. Is willing to search for new ways to achieve success with students</td>
</tr>
<tr>
<td>Contextualism</td>
<td>1</td>
<td>Gives little impression that s/he thought contextually about this problem</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Discussed many of the background contexts cued by the problem, but response is less than ideal</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Gives the impression of a great awareness of the many factors which affect teachers and students and their interaction in classrooms</td>
</tr>
<tr>
<td>Relativism</td>
<td>1</td>
<td>Gives the impression that there is one simple solution to such a problem</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Is sympathetic and mentions that there could be alternative plans and decisions, but does not mention importance of analyzing the “burned out” person’s situation and its possible remediation</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Gives the impression that s/he understands the person’s problem and is able to think in a relativistic way</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>1</td>
<td>Believes that there is only one right way to teach his/her subject</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Includes only a general comment concerning varieties of styles and methods</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Gives the impression that s/he is knowledgeable about a variety of teaching styles and methods and has chosen his/her way from a number of possible ways to achieve success</td>
</tr>
</tbody>
</table>
If, in response to the fourth question directed toward the criterion, *relativism*, the respondent gave the impression that there was one simple solution to the problem that was outlined, the rating was one; the ideal response, rated seven, was one that indicated sympathy for a person in a difficult predicament, and mentioned that there could be alternative plans and decisions.

Finally, with regard to the question related to the criterion, *uncertainty*, if it was stated that there was only one right way to teach a certain subject, the rating was one; ideally, however, for a rating of seven, the response would give the impression that the person was knowledgeable about a variety of teaching styles and methods and had chosen his/her way from a number of possible ways to achieve success.

To test the usefulness of the five questions, the three teachers who participated in the exploratory study were asked to respond to them. The responses were taped and transcribed. Questions three, four, and five were coded by the researcher and, independently, by another person. Comparison of the results of the analyses disclosed a small number of differences of opinion which were attended to by clarification of the criteria for the three scale points. A further check of the accuracy of the coding is reported in the data analysis section of the study (see p. 78).

The form used to assess the wisdom that each protocol yielded is presented in Appendix B.

**DATA COLLECTION**

The data for this study were collected through interviews with expert teachers. The way in which certain expert teachers were identified and the way arrangements were made to interview them are reported in this section.
Identification of Respondents

The teachers who were asked to participate in this study were from one school district in British Columbia. They were secondary public school teachers with department head assignments.

The school district. A particular school district was selected for the study for two reasons: first, as this is a large district encompassing several communities with different socio-economic features, it is a rich source of data; second, as the researcher has worked for many years in this district, it was assumed that her relationship with teachers and administrators would increase interest and participation in the study. Although some might argue that the study could be contaminated because of the researcher’s involvement in the district, quite a different point of view can be defended.

Research is understood to mean diligent and systematic inquiry, “...an objective, logical, and systematic method of analysis of phenomena, devised to permit the accumulation of reliable knowledge” (Lastrucci, 1961, cited in Jackson, 1988, p. 2). To be “objective, logical, and systematic” does not necessitate the preclusion from the research of an experienced practitioner who is or has been personally involved in the situation under investigation (Scriven, 1972; Popkewitz, 1981). It is not always the cool, mechanical approach of a technician that results in the “accumulation of reliable knowledge”. When circumstances involve the subtleties of relationships between people or the nuances of refined performance, only an observer with an accumulation of experience in similar situations can come close to a meaningful description of a particular phenomenon (Eisner, 1979).

The choice of secondary teachers. The study did not include teachers in elementary schools. It was confined to secondary teachers for three reasons: the need to
limit the study, the perspective of the researcher, and the convenience of the secondary department head position.

There are notable differences between the teaching practice of elementary and secondary teachers, differences in the attitude and behaviour of students, in curriculum content, and in teaching techniques. Because these differences are substantial, the decision was to limit the study to one organizational level only. The secondary level was selected. The researcher of this study had worked most recently as principal of a secondary school and as a supervisor with responsibility for a number of secondary school disciplines. Her involvement with the secondary school curriculum and with secondary teaching practice was an important factor in the decision to make this a study of secondary, rather than elementary teachers and teaching practices.

The department head position in the secondary school provided a convenient means of selecting expert teachers.

*The department head position.* It has been noted that some difficulties are inherent in the identification of expert teachers (see above, p. 39). The difficulties arise with regard to the criteria by which some teachers may be designated experts, and with regard to the persons who are considered to be qualified to apply the criteria. In the school district where the data were collected, when teachers are assigned to department head positions, both the criteria for selection and the person responsible for applying the criteria are specified. School district policy with regard to the appointment of department heads (see Appendix C) states that a candidate for department head should have:

1. a valid Professional B. C. teaching certificate and a major or equivalent in the subject area for which the appointment is made,
2. a record of several years successful and enthusiastic teaching,
3. the ability to lead, to organize and to work with others,
4. a major part of his/her teaching load in that subject area,
5. participated in appropriate professional development programmes, seminars and/or workshops. (p. 4)

The policy also states that

The superintendent will make such appointments as are deemed appropriate, based on the principal’s recommendations accompanied by completed application forms. All appointments will terminate at the end of the school year for which the assignment was made. (p. 4)

This school district policy, then, gives assurance that department heads have been selected judiciously and with consideration for their qualifications as successful and enthusiastic teachers. For purposes of this study, it is assumed that successful and enthusiastic teachers who possess the other listed qualifications are expert teachers.

A review of the department head assignments in the district showed that in each secondary school, these positions were consistently allocated in five subject areas: English, mathematics, physical education, science, and social studies. As well as these assignments, a number of additional positions were designated in some schools (see Table 4.3).

It was decided to approach teachers who were assigned to the positions which were represented in each school, those in the disciplines of English, mathematics, physical education, science and social studies. By following this plan, the subject population would include eighty teachers: five from each of the sixteen schools in the district. It was from this pool of eighty teachers that volunteers were invited. All who volunteered were accepted for inclusion in the study.

**Identification of Respondents and Interview Arrangements**

Following a written request to the Research and Evaluation Department in the school district where the study was to take place, the researcher was granted permission to interview teachers in the district (see Appendix D). Subsequently, a package of information was sent to each of the principals of the secondary schools in the district. The package contained a covering letter to the principal with a brief summary of the project, a letter to each of the department heads in five subject areas, English, mathematics, physical
education, science, and social studies, with a summary of the project and a request for assistance, and consent forms to be signed by each teacher who agreed to participate in the study (see Appendix D).

Table 4.3. Department Head Positions and Numbers of Schools with Teachers Assigned to Each Position

<table>
<thead>
<tr>
<th>POSITION</th>
<th>NUMBER OF SCHOOLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities Co-ordinator</td>
<td>1</td>
</tr>
<tr>
<td>Athletic Co-ordinator</td>
<td>7</td>
</tr>
<tr>
<td>Business Education</td>
<td>6</td>
</tr>
<tr>
<td>Career Preparation</td>
<td>1</td>
</tr>
<tr>
<td>Computer Education</td>
<td>1</td>
</tr>
<tr>
<td>Elective Subjects</td>
<td>1</td>
</tr>
<tr>
<td>English</td>
<td>16</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>5</td>
</tr>
<tr>
<td>French</td>
<td>5</td>
</tr>
<tr>
<td>Home Economics</td>
<td>5</td>
</tr>
<tr>
<td>Industrial Education</td>
<td>6</td>
</tr>
<tr>
<td>Industrial Education/Technology</td>
<td>2</td>
</tr>
<tr>
<td>Inter-A Co-ordinator</td>
<td>1</td>
</tr>
<tr>
<td>International Baccalaureate</td>
<td>1</td>
</tr>
<tr>
<td>Mathematics</td>
<td>16</td>
</tr>
<tr>
<td>Modern Languages</td>
<td>1</td>
</tr>
<tr>
<td>Physical Education</td>
<td>16</td>
</tr>
<tr>
<td>Practical Arts</td>
<td>2</td>
</tr>
<tr>
<td>Pre-Employment</td>
<td>1</td>
</tr>
<tr>
<td>Science</td>
<td>16</td>
</tr>
<tr>
<td>Second Languages</td>
<td>1</td>
</tr>
<tr>
<td>Social Studies</td>
<td>16</td>
</tr>
<tr>
<td>Special Education</td>
<td>2</td>
</tr>
<tr>
<td>Special Programs</td>
<td>2</td>
</tr>
<tr>
<td>Student Services</td>
<td>1</td>
</tr>
</tbody>
</table>

Forty teachers volunteered to participate. They were interviewed during the fall and winter of the school year, 1989-1990: seventeen between October 25 and November 21, 1989, and twenty-three between January 15 and February 28, 1990. Each teacher was asked to select a location for the interview which would facilitate his/her feelings of relaxation and enjoyment of the interview: the classroom, the staff room, one of the school
offices, the researcher's office, or any other viable location. Two teachers chose to be interviewed in the researcher's office; the other thirty-eight were interviewed in their schools, four in the staff room, two in the library, and thirty-two in their own classroom. The interviews occurred in a teacher preparation period, after school, or in the evening. The interviews were recorded on audiotape.

Description of the Respondents
As already noted, the teachers who participated in the study were all volunteers with responsibilities as department heads in five subject areas (English, mathematics, physical education, science, and social studies) in one large school district in British Columbia. Biographical information recorded about the subjects included gender and years of teaching experience. Situational information included the type of school and the subject area taught.

Biographical information. Twenty-nine male and eleven female teachers volunteered to participate in the study. The range of years of teaching service was 29, extending from 4 years to 33 years, the mode was 16, the median 18.5 and the mean 16.7. The number of teachers in each of three length-of-experience categories is presented in Table 4.4. The three categories were intended to correspond as much as possible to Baltes' (in press) designation of young, middle-aged, and older adults (see above, p. 34).

Table 4.4. Number of Years of Classroom Experience of Subjects

<table>
<thead>
<tr>
<th>YEARS</th>
<th>NUMBER OF TEACHERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 10</td>
<td>9</td>
</tr>
<tr>
<td>11 - 20</td>
<td>21</td>
</tr>
<tr>
<td>21 - 33</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.5 %</td>
</tr>
<tr>
<td>52.5 %</td>
</tr>
<tr>
<td>25.0 %</td>
</tr>
</tbody>
</table>
Situational information. The sixteen secondary schools in the district may be classified in three groups according to the grade level of the students who attend (see Table 4.5). There are eight junior secondary schools enrolling students in grades eight, nine, and ten, five senior secondary schools enrolling students in grades eleven and twelve, and three junior/senior secondary schools enrolling students in grades eight to twelve. Of the teachers participating in this study, sixteen were from junior secondary schools, thirteen from senior secondary schools, and eleven from junior/senior secondary schools.

Table 4.5. Grade Organization and Distribution of Subjects

<table>
<thead>
<tr>
<th>TYPE OF SCHOOL</th>
<th>GRADE LEVELS</th>
<th>NO. OF SUBJECTS</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Junior Secondary</td>
<td>8, 9, 10</td>
<td>6</td>
<td>40.0 %</td>
</tr>
<tr>
<td>Senior Secondary</td>
<td>11, 12</td>
<td>13</td>
<td>32.5 %</td>
</tr>
<tr>
<td>Junior/Senior Secondary</td>
<td>8, 9, 10, 11, 12</td>
<td>11</td>
<td>27.5 %</td>
</tr>
</tbody>
</table>

Classified by teaching area, the group comprised nine English teachers, five mathematics teachers, seven physical education teachers, ten science teachers and nine social studies teachers (see Table 4.6).

Finally, a composite of biographical and situational factors is presented in Table 4.7, indicating the numbers and percentages of male and female teachers with regard to length of experience, type of school, and subject area taught. This tabulation reveals that for this group, the number of male teachers is disproportionately high at the senior secondary level (84.6 %) and the number of females is disproportionately high in English department head positions (66.7 %).
Table 4.6. Number of Teachers Classified by Teaching Area

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>NUMBER</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=40</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>9</td>
<td>22.5 %</td>
</tr>
<tr>
<td>Mathematics</td>
<td>5</td>
<td>12.5 %</td>
</tr>
<tr>
<td>Physical Education</td>
<td>7</td>
<td>17.5 %</td>
</tr>
<tr>
<td>Science</td>
<td>10</td>
<td>25.0 %</td>
</tr>
<tr>
<td>Social Studies</td>
<td>9</td>
<td>22.5 %</td>
</tr>
</tbody>
</table>

Table 4.7. Teachers’ Gender in Relation to Biographical and Situational Factors

<table>
<thead>
<tr>
<th>YEARS OF EXPERIENCE</th>
<th>TYPE OF SCHOOL</th>
<th>SUBJECT AREA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>J S J/S</td>
<td>En Ma PE Sc SS</td>
</tr>
<tr>
<td>1-10</td>
<td>N=9 N=16 N=11</td>
<td>N=9 N=5 N=7 N=10 N=9</td>
</tr>
<tr>
<td>11-20</td>
<td>N=21 N=13 N=11</td>
<td></td>
</tr>
<tr>
<td>21-33</td>
<td>N=10 N=11</td>
<td></td>
</tr>
<tr>
<td>Male (N=29)</td>
<td>5 11 3</td>
<td>3 4 6 8 12</td>
</tr>
<tr>
<td>%</td>
<td>55.6 68.7 33.3</td>
<td>55.9 65.7 33.3</td>
</tr>
<tr>
<td>Female (N=11)</td>
<td>4 5 6</td>
<td>6 1 2 1</td>
</tr>
<tr>
<td>%</td>
<td>44.4 31.3 66.7</td>
<td>44.1 34.3 66.7</td>
</tr>
</tbody>
</table>

DATA ANALYSIS

Audiotapes of the interviews yielded transcripts typed by the researcher. The forty transcripts varied in length from approximately 2000 words to 6750 words, with an average length of 3650 words.

The data were collected to serve two complementary purposes: to enquire about the nature of expert teaching practice and its attainment and to enquire about the wisdom of expert teachers. To analyze the data for the first purpose, a content analysis procedure was
The Content Analysis Procedure

The content of the protocols was classified to identify descriptions of first, the nature of teacher expertness and second, the development of teacher expertness. A report of this process follows, together with an accuracy check that was made of the coding.

The nature of expertness. The first protocol was scrutinized and all of the statements descriptive of the nature of expertness were identified. Most of these statements were found as answers to the sixth interview question: “What do you think makes for expertness in teaching?” This first protocol was found to contain four different kinds of statements about the nature of expertness:

1. Knowledge of the subject area. You have to know what you’re teaching so that the information is being presented correctly.

2. Being creative.

3. Experts have to have a desire to make a difference for the students that is exciting and that is different.

4. Not being afraid to admit that you have weaknesses. I think if I have a weakness in chemistry, I shouldn’t be worried about that.

The four statements were used as types to form four categories, (1) knowledge of subject area, (2) creativity, (3) relationship to students, (4) admitting weaknesses.

When the second protocol was examined a statement about “knowledge of subject area” was identified, as was one about “relationships with students”. These descriptions could be categorized in the classifications that evolved from the first protocol. In this second protocol, however, a third characteristic of the expert was recognized, “self-confidence”. It now appeared that there could be a category “personality factors” which would include two factors from the first protocol, “creativity” and “admitting weaknesses”
and the third descriptor of the second protocol, "self-confidence". A single category, "personality factors" was used, therefore, to comprise the three statements.

In this way, each protocol was searched in turn for statements about the nature of teacher expertness, and the classification was adjusted to suit the statements.

**The development of expertness.** Statements about the development of expertness were examined and categorized in a similar manner to those about the nature of teacher expertness. These statements were found for the most part at the beginning of the protocols in the teacher's discussion of a particular lesson, usually the last lesson taught. Beginning again with the first protocol and proceeding to the second, relevant statements were identified and classified. Once again, adjustments were made to the categories as patterns of statements emerged.

**Evaluation of the accuracy of the classification.** In order to assess the accuracy of the classification of the statements, following the analysis of the first seventeen protocols in the manner described above, all of the statements about the nature and development of expertness were copied onto separate slips of paper. The set of factors included 60 statements about the nature of expertness and 51 statements about the manner of its development. The statements were given to an assistant, a retired teacher. She was asked, working independently of the researcher, to sort the statements into the established categories. When she had completed the task, the results of her classification and that of the researcher were compared. Where there were disagreements the classification was discussed and consensus was reached in most instances. When consensus was not reached, the researcher's view prevailed. The level of agreement (98 %) was considered sufficient confirmation of the accuracy of the researcher's coding and, therefore, the researcher continued the classification of statements in the other twenty-three protocols in a similar manner to that which was used with the first seventeen.
Further consideration of the data led the researcher to view them in another way. As a result, a second classification of the statements was undertaken, providing a clearer picture of how teachers believe they move from novice to expert status.

An integrated view. As the researcher contemplated the statements in the two sets of data, separated into “nature of expertness” and “development of expertness”, there appeared to be some overlapping of statements. This overlapping was evident, for instance, in the category “experience” which was a factor in both sets of data. Although teachers clearly made statements about experience when they described an expert as well as when they discussed the development of expertness, it became evident that the information need not be viewed discretely. For instance, this statement was recorded in the category, “experience” in the set of factors concerning “nature of expertness”:

Experience. I dislike the fact that it takes me eleven years to get to my maximum pay, but there is at least some background to the fact that it's taken me, maybe not eleven, but certainly some years to become a better practitioner than I was when I started.

How similar is this statement in the set of data about the development of expertness:

The refinement of technique, the ability to get across difficult concepts in a variety of different ways because you have developed flexibility, can only come with experience.

Although the first statement was made when the teacher was responding to the question “What do you think makes for expertness in teaching?” and the second was made when the teacher was describing how he had acquired his expertness, the motif of the two statements was the same, that experience is necessary for the novice to become an expert. To separate these two statements about experience was not helpful in the analysis of teachers’ reflections upon expertness.

Both sets of data also comprised comments about personal attributes. Similarities between statements separated as “nature of expertness” and “development of expertness” are evident in these examples. About nature of expertness:
Having the energy, having a personal commitment, having some idealism and also having some personal competitiveness so that you’re not satisfied with being average or good, but can be better.

And about development of expertness:

There are personality reasons. You have to have commitment, you have to have some idealism. If you don’t have idealism, then it may be a worthless thing to do. You have to believe in some of the things you are doing, not necessarily all of them. You have to be competitive as a person and not be satisfied with mediocrity.

It became apparent that it would be profitable to look at the data from another viewpoint. The resulting rearrangement of the statements reflected the themes which pervaded the teachers’ descriptions of expertness and its development and, at the same time, eliminated the troublesome overlapping between classifications.

Dominating the protocols was the depiction of a model teacher who possessed certain personal attributes, who was able to work successfully with students and who was knowledgeable in his/her subject area. Included in this group of statements, therefore, were those from the original classifications, knowledge of subject area and ability to work with students, as well as those statements in the personal attributes classification which were descriptive of the expert.

A second group of statements was now seen to centre upon the persons and activities which influenced the teacher to grow and change. This group included statements about other teachers, student teachers, workshops, reading, and teacher training. Also included were some of the statements about personal attributes such as creativeness and the impetus for self-renewal.

The final group of statements was descriptive of the developmental process by which new ideas were implemented and became part of the teacher’s repertoire of teaching expertness. These statements included all of those about experience as well as those about personal characteristics that lead the individual toward more and more expertness.

The data about teaching expertness and its development are reported in Chapter V. A second data analysis procedure was used to assess the extent to which the criteria for wisdom could be found in the responses of these expert teachers.
Application of Framework of Baltes and His Associates (in press).

The way in which the framework of Baltes and his associates was adapted to examine the wisdom of expert teachers has been explained (see above p. 56). After the researcher had examined the first ten protocols and had awarded ratings to each of the responses, a check was made on the accuracy of the ratings. Three protocols which represented quite varied points of view were selected by the researcher for this check. Two research assistants in the school district had agreed to assist with the data analysis. They were instructed in the use of Baltes' framework and particularly in the manner of rating the responses to the five questions bearing on the wisdom criteria. The two assistants were then asked to rate independently the three protocols selected by the researcher. When this task had been completed, the researcher met again with the research assistants to compare the results of the ratings. Intercorrelations of the ratings ranged from .58 to .83 with the lower correlation being ascribed to the consistently low assessment of one rater and the consistently high assessment of a second rater. Each rater discussed her reasons for awarding each score and, in a short time, the three raters reached consensus on the scores awarded for the responses to the questions presented to the three subjects.

Two additional safeguards against inaccuracy were undertaken by the researcher: first, for all responses, written reasons for assigning a less than perfect rating were recorded; second, when all of the responses had been rated, the written reasons were reviewed to see if there were inconsistencies in the reasons. No inconsistencies appeared.

A report of the results of the application of Baltes' framework to the data acquired for this study is reported in Chapter 6. This follows the report of the results of the content analysis procedure in Chapter 5.

Identification of Themes in Teacher-Talk

When the data had been analyzed by both of the procedures described above, some important data were seen to have been overlooked. Teachers had made comments that were
neither directly applicable to the discussion of the nature of teacher expertness and its attainment nor specifically in response to the questions relative to the wisdom criteria. Some of the comments were seen to provide implicit rather than explicit descriptions of teacher expertness. As these comments recurred and were seen to be prevalent in the protocols, they were classified according to the topics they addressed and were designated themes. All of the protocols were subsequently reviewed to see whether or not the topics or themes had been mentioned.

The themes are reported as separate findings in Chapter 7. Their relationship to mention of the elements of expertness and to evidence of the wisdom criteria in the protocols are also discussed in that chapter.
CHAPTER 5

TEACHER EXPERTNESS AND ITS ATTAINMENT

As discussed in the previous chapter, the teachers who volunteered for this study were not randomly selected and were not considered to be representative either of secondary teachers in the particular school district in which they worked or of teachers in British Columbia schools. An analysis of the composition of the group has indicated also that they did not represent any particular gender, length-of-experience group, type of school, or subject area, but that they comprised a range of people and situations. They had in common only that they were considered to be expert teachers.

Teachers' responses to the interview process reflected an appreciation of the opportunity to be researchers in their own practice and to become sources of discovery about their profession. This attitude was apparent not only in their comments about the process itself but in the extensiveness of their responses to the interview questions. Their reaction was evocative of Schön's (1983) evaluation of reflective research:

The agenda of reflective research will be generated out of dialogue between reflective researchers and practitioner-researchers, and will be constrained by the requirement that the research be of the kind that practitioners can also undertake. In consequence, there will be a new approach to the sometimes vexing question of the implementation of research. Implementation will be built into the process of reflective research, for practitioners will gain and use insights derived from it as they participate in it. (p. 324)

The subjects, then, were a diverse group of willing and committed volunteers. There follows a detailed report of their descriptions of expertness and its attainment. This chapter includes a presentation in narrative form of the words teachers use to describe expert teaching practice, an examination of these words to see if certain patterns emerged, and a discussion of the findings.
THE TEACHER-TALK PRESENTED

The presentation of “teacher-talk” about expertness and its attainment includes (1) an account of teachers’ descriptions of the expert teacher, (2) a report of what teachers say about the generation of their ideas, and (3) a presentation of teachers’ discussions of the process through which new ideas or techniques become part of their repertoire of teaching expertness.

The Expert Teacher

When subjects described teachers with expertness, they commented on certain personal attributes indigenous to these teachers, they discussed the ability of these experts to respond to students, and they lauded the knowledge of subject area which experts embrace. In this section, these three kinds of comments are reported, beginning with those about the personal attributes of people with teaching expertness. Where quotations from transcripts are used, they are identified with the protocol number and page number in parentheses.

**Personal attributes.** Some of the statements that the department heads made suggested that teachers are “born, not made”:

A lot of it is dependent on the teacher. I don’t think by going to school you can teach somebody to be a teacher. (1:7)

I believe that teaching is personality driven—that you teach the way you teach because that’s the kind of person you are. (4.6)

It was often stated that teachers can learn and can improve, but certain qualities were said to be prerequisite and to a degree innate in order for a teacher to become an expert.

I think teachers are born. I’m not saying that teachers can’t learn. Teachers are always learning, but I think they’re born. Yah, I do. I think you’re born. You will
get better with experience and from acquiring new techniques if you’re listening. (13:16)

I’m not sure that this job is for everyone. It takes a certain talent to do the job well. People can do the job, but to do it well requires certain abilities that not everyone has...I think there are certain qualities that teachers need to have to be really good. I think teaching is like any other activity, whether it’s a sport or whether it’s something like music or whatever, certain people are good at it. If you have those qualities which will make you a good teacher, then you can develop those more, but some people, I don’t think no matter how long you work with them, will ever be good teachers. (29:8)

I think of teaching as a vocation. It’s not just a job. It’s something you were meant to do. And I think there are people in teaching that were never meant to be. (12:12)

The expert was described as a person possessing “with-it-ness”. The teacher who used this word also used the word “ingrained” to describe certain qualities necessary for success.

It definitely has to be with-it-ness. There has to be an ingrained love of people, not necessarily of your subject matter, because I have seen some people that are not as good with subject matter, but yet are wonderful with people, that are able to make things work. But you definitely need inter-personal skills and with-it-ness to say, this will work for me and this will work for my students, and if you have that, I think you’ll be pretty successful. (28:7)

This teacher had more to say about teachers’ credibility and certain traits that are perceived by students:

There are certain traits, intrinsic traits, that are perceived—whether or not you’re honest, whether or not you’re friendly, whether or not you’re a good person— that have bearing. Certainly students’ perceptions of you [matter], whether or not you’re on the ball, you’re clever, you’re with it. And there are certain physical traits, whether or not you have some presence, whether or not you have, I hate to say good looks because I think that your physical attributes are not necessarily a key to being a successful teacher, but certainly you have to have a commanding presence of some sort, rather than being merely beige and that makes a difference. And if there’s too much difference between the actual and the perceived, then despair! (28.7)

And a quotation to conclude this selection of comments about the innate qualities of expert teachers:

There has to be a magic. I don’t know whether you trick people into learning, but they certainly learn better from people they find magical. They have to be intriguing to the students. That magic has to exude from every pore. Maybe it doesn’t exude from every pore every day, but it has to be there in enough quantity and quality to keep the kids coming back and to keep them interested. (28.7)
The innate qualities which are prerequisites for teacher expertness can, according to one teacher, be detected early:

To be a top teacher, the same as being a top athlete, a top musician, a top anything, you need certain abilities. You can tell just by knowing a person for a while, seeing how they operate with kids, seeing what they do in the classroom. I've had student teachers before and I could tell ones which I thought were going to be good. They could have had just a horrendous lesson, but there's something about them that you can sort of see, well, that person will have it, won't have it all together but can be a good teacher. So I think it's a combination. Now, someone who can't learn, they can't be a good teacher no matter how talented, or how they have these qualities. They can't be a good teacher if they can't learn. It's a combination. (29.8)

The possibility of improving upon some prerequisite characteristics was made clear by one department head:

There are lots of good teachers, but the better ones are the ones that have the real heart. It's something that's not too tangible. But you can work on that thing. I don't think it's something that is completely innate, but it's something that's just that added extra to make teachers different. (11:15)

One teacher was succinct: "Expertise in teaching is having the right attitude toward teaching in the first place" (39:16).

According to the subjects interviewed for this study, as well as having certain innate characteristics, the expert teacher is a "fairly centred, balanced person" (3:13) and is "self-confident" (7:22):

[You have] to have succeeded yourself. I think in many ways a good student then, in turn, makes a good teacher. And then, when you are a teacher and you have a successful experience in the classroom, then that builds up your confidence and you can repeat that kind of experience again with variations on it. And so, basically, expertise is based on a series of successes that you have had. (12:15)

Enthusiasm was seen to be essential:

You have to show that you are enthused about what you're doing. And if you do that, I think the people around you or in front of you are going to be enthused about that. Certainly the opposite is true, that if you're not enthused about what you're doing and that comes across to your audience, they're not going to be enthused about it either. (14:10)

A person who had taught for ten-years described enthusiasm this way:

[Expert teachers] like to get up every morning. Life is exciting, not always exciting, but it's something to look forward to. Every day there's something new and they like the possibilities that come out of dealing with that number of people every day and that kind of energy every day with those kids. So it's an attitude first of all...to
be positive no matter what happens and to feel good and to love their subject area and to have some personal connection with it and to know that it's possible to transmit some of that knowledge and enthusiasm. (27:10)

Having a sense of humour was mentioned more than once and also "the ability to sort of laugh at yourself, because in some ways it can be very easy to become rather serious about the whole business" (16:16).

Several teachers alluded to what one person summarized as "a personal commitment and some idealism" (9:3):

I think there has to be a sense of commitment also. We really have to believe that we can do something, that we can be successful, that what we're doing is worth the hours. When the teacher bashing years were here that was the most demoralizing! Going home at night with a huge stack of marking and sitting there with my pot of coffee and watching the Minister of Education say on the six o'clock news that I was lazy and overpaid. I think that that sense of commitment is absolutely essential. (19:20)

In summary, many of the respondents described the personal attributes of expert teachers. These attributes included characteristics that are innate and those that can be developed. The characteristics that were described as innate included the ability to learn, the right attitude, with-it-ness, and a commanding presence. Those attributes that can be cultivated are, according to the respondents, self-confidence, enthusiasm, a positive attitude, a sense of humour, an ability to laugh at oneself, and a sense of commitment.

Responding to students. "Experts have to have a desire to make a difference for the students that is exciting and that is different" (9:15). Statements similar to this one were grouped together to form a category called "Responding to Students". These statements include comments about the ability to inspire students, to be a magical motivator, to be sensitive to student needs, to set clear guide-lines for students, and to make connections. They also include understanding the dynamics of individuals and knowing how to make quick changes.

An awareness of the adverse conditions some students face outside of the school was discussed as a necessary, primary consideration:
You've got to understand that the math class isn't always the most important thing in their life at that time and you can't be on their backs all the time. You can't do your math homework if your parents were having a drunken brawl. You've got to know those things go on and take them into account. (37:9)

An English teacher drew attention to the effects of the political organization of the school:

In a bureaucracy you've got the rules and regulations and you just perfect the system so that no one has to ask anybody what to do next. It's all written down. There's no question, there's no worry that you're not doing things in the right order and right place. And that's not how education is run. Every kid is different, every year is different because we move, we progress, and that's what it should be like.... Luckily a lot of teachers don't follow all the rules or else we'd be really screwed up. And the traditional ones, and in many ways the more insecure ones, want rules and regulations, because then they don't have to think. They come into class with thirty kids and—I've met lots of teachers like that—"I don't read their journals", one guy said to me, "I might know something about the kid that might influence the way I think about him and give him a better mark on the test than he deserves" or something like that. Give me a break! You can't have that when you're dealing with people. (7:14)

Teachers commented, then, on the need to understand the social milieu of the students. The importance of being aware of the state of their learning was also stressed:

If I'm discussing with a student a concept that they're stuck on, I've got to be able to think what are they thinking. So an expert teacher has to be able to read students' minds more, looking at expression, the way they're sitting, where the little light comes on. (23:20)

A junior secondary school mathematics teacher expressed it this way:

I think you need to be aware of your students and whether or not they're understanding the material. You can be having the best lesson there is possible and be going right over their heads and not knowing that, but be very quiet, but be trying hard, but they don't understand what you're doing. And I think one of the most important things for us as teachers is to be aware whether or not the students are mastering the objectives which you're setting out that day. And if you are, then you are successful, and if you're not, you need to be flexible and able to adjust what you're doing to try different avenues and do things differently. (29:8)

Teachers spoke at length of the ability to understand students and empathize with them as an ingredient of teacher expertness:

The biggest problem we have is non-attendance. They like to come to school, but they don't like to come to class. And if you can get them in the room, then you've got half the battle. The other part is can you make them feel good about themselves? (7:22)
Many teachers commented on the need to like students. One person who discussed this need was a mathematics teacher who had worked in the classroom for more than twenty years:

You have to like kids. You have to understand the people that you deal with. If they want to learn then you have the responsibility of teaching them and if you don’t feel that way, you’re just an expert in your field and you’re not a good teacher. You really are not. (17:20)

A similar statement was made by a social studies teacher in a junior/senior secondary school:

You have to like kids. By like, I don’t mean that I make friends of these little guys and they come home with me and hang around me on the week-ends, but you have to be comfortable around kids, you have to be able to share all of yourself with them, your emotions, your intellect, and everything that you are. (35:14)

Allied to statements about liking students were comments about enjoyment of working with them:

I think you have to really have fun working with kids. You can’t get too upset about students making mistakes or not caring or whatever. I think you really have to enjoy just youth and what kind of things they do. (11:15)

... to relate to the kids and let them run their own energy and that’s what I think keeps the classroom alive and flowing and free. It’s like the wild salad. Let it flow. (27:11)

One person said, “In the present situation we can’t really force the kids to do anything they don’t want to do, so you’ve got to use different methods” (38:9). In a more positive vein, another teacher commented:

I would have to say that one of the fundamental requirements is you have to treat the students with respect. I’ve found that the vast, vast majority of students respond very positively to that. (25:15)

This presentation of the statements teachers made about the expert’s ability to respond to students can be seen to have included three major foci: understanding students, liking them and enjoying working with them, and respecting them.
Knowledge of subject area. Many teachers declared that, for a teacher to be called an expert, knowledge of subject area was of prime importance. The following are examples of statements which refer to knowledge of subject area:

I think number one is knowledge of subject matter. I think that's really important. I think that it cannot and should never be over stressed. It bothers me if somebody tells me that so-and-so is an English teacher because they've taught English before, but have no background in English. The knowledge of subject matter is very important to me. (8:9)

Command of the subject material. Total command of the subject material. When you're in total command of the subject material then you can see during the course of the lesson deviations for the students—that they don't quite understand possibly. (13:13)

I've seen a lot of people teaching when they don't know what it is they're trying to teach. How can you put a lot of energy, enthusiasm, excitement into something that you only know in a kind of half-hearted way? (35:13)

Some interviewees emphasized the importance of having their department staffed with teachers who have a strong subject-area background. A mathematics department head rejoiced in some progress:

When I first took over the department, I had "everybody can teach Math Eight" which was a real problem. I've got a strong department now—everybody has a math background, some people are shared between math and science but they are people who do know how to teach math and we're getting better results. (37:11)

An English department head was not so fortunate:

You know, one of the things that is a sort of thorn in my side is this idea that anyone can teach English. I take a lot of pride in, and I guess I've always had a passion for literature, and it really bugs me when they just hand it out, left, right, and centre. In this school, since the days of L. and G., we haven't had an English department. There's just R. and me and then seven or eight others with one block of English and I don't like that at all. (31:6)

Generation of Ideas

Even those teachers who stated that not everyone can be an expert teacher said that change can take place as long as the teacher is willing to listen and learn. Statements teachers made about the ways teacher improvement is instigated and the ways new ideas are generated have been grouped together. We look at these statements now.
Teachers stated that many of their ideas were generated from their own personal resources, but that they were also dependent on other people to inspire them and to encourage them to accept new ways. Some teachers discussed certain professional development activities. We look first at teachers’ statements about the personal resources that generate ideas.

**Self-motivation.** Subjects often spoke of attitudes or qualities within themselves which propelled them toward honing their teaching skills. These attitudes or qualities have been classified as self-motivation.

The expert teacher, it was said, was someone with “an open mind and a willingness to learn” (2:8). A science teacher explained:

> [There is] a certain curiosity or inquisitiveness that is on-going. In other words, I guess you’re not satisfied with where you’re at. And I think there’s an intellectual aspect to it where, not so much that you’re reading academic journals and that sort of stuff, but your eyes and ears are open a bit to things that you do pick up at workshops and in magazines and stuff that’s on-going and coming out. I think those things lead to expertise. (24:13)

Some teachers mused about the ways their ideas evolve. One person said, “Many from sort of lying awake in the middle of the night and thinking, ‘What can I do?’” (19:2). Another reflected, “I just kind of pull my ideas from all over the place. I really couldn’t say they come from any place” (25:3). Some similar comments follow:

> I’d like to say that I spend hours and hours puzzling it out, but my greatest inspirations sometimes happen in the morning in the shower, sometimes they happen in the library, often they will happen when I’m reading something else. To me, teaching is like putting together pieces of a jig-saw puzzle, and you’re excited when you find a particularly difficult piece and you make it all fit together. (28:2)

> I mull things over...and sometimes I just have an inspiration...usually when I’m brushing my teeth, and I think, “Ah, that will work, maybe, and at least it’s worth a try”. (32:1)

Good ideas that work for me come to me when I’m doing just about anything. For example, I’ve trained myself just to be efficient, whenever I’m driving alone in a vehicle. I don’t just drive, I think about my lessons and out of the blue you get an idea about something that has gone not that well in the past, well, I’ll try it another way. (35:2)
One teacher said, “It’s kind of self-directed as opposed to externally directed” (24:12), and another, “I think it has to be teacher driven” (24:13).

Teachers, then, described their stimulation to move toward expertness as, first of all, being self motivated, that is, dependent on a willingness to learn and to be self-directed.

Other people. Many respondents discussed other people as catalysts for their developing expertness. Some of these other people were teacher models from pre-service times:

I think back to my school career and my student career and I can think of three or four guys who really made an impact on me. One was a band teacher when I was in grade ten. (16:4)

One of the reasons I’m an English teacher is that my English teachers were always wonderful. I always had incredible respect for my English teachers so they are really my role models. (27:1)

I had a very, very stimulating person I worked with when I did my student teaching that drilled into me, emphasized to me the importance of utilizing your resources and being creative. (26:2)

Other influential teachers were close at hand:

Talking with other people in the school. Right in the school. Colleagues in the school. Sharing information and gradually changing and evolving one’s teaching style. (10:2)

I picked up a lot from a guy that I teach with. (11:2)

The vast majority of my ideas come from other teachers. I would say seventy-five percent of my ideas are things that I learned from other teachers. Even kids coming to my class. One said, “Sir, we did this really neat thing in French.” (3:3)

I think most of my ideas have come from other teachers that I’ve been in fairly close association with. I’m always picking up little bits and pieces here and there. (24:1)

[I learn] from watching other teachers, other teachers in my field. I copy their ideas, I use them, I build on them, I delete and add to their ideas when I’m teaching something I haven’t taught before. (40:2)

When I was a beginning teacher, I would go on and on like a rookie teacher about something and I wanted to do this and I wanted to do that, and D. would just ask me a question like, “Why are you doing that? Where are you headed with that?” He would just ask a question and the question would give me insight. (16:4)

A more formal process for learning from other teachers was also mentioned:
I think one thing in this district that is beneficial is that peer supervision where you have the opportunity, not to evaluate somebody, but to work with another teacher to improve your performance or improve your teaching techniques. (1:16)

One teacher said, "A mentoring system can be an energizing way of increasing the creativity of the teacher" (1:12). Another was convinced that such a system was essential:

One of the things that I would like to see happen in teaching a little bit more, I'd like to see mentors happen. I'd like to see people take younger teachers under their wing and say, "Here, look, let me help you, let me share this and share that with you, let me show you some of the things that I've found to be successful". You know, for a young teacher coming into the profession, it's just overwhelming. For three or four years you're just trying to keep your head above the water. It sure would be nice to have an older teacher. Maybe you should expect that. Maybe you have to somehow pay people for it, but make it happen more than it's happening now. (39:18)

Contacts with other teachers sometimes came about through special opportunities.

I have found in the last couple of years when I've been going to Victoria marking papers and spending a lot of formal and then informal time with people who teach the same course I do and they're just as excited about it as I am, it's their baby. Just sharing, picking brains, a mutual sort of brain-picking. (35:2)

From a physical education teacher came this comment, "We get together as teachers and put together some curriculum stuff for the district about volleyball" (11:2), and from a social studies teacher:

And actually it all started with those manuals that I worked on. The grade eight one with P. and D. and B. which got me started. You were at the Board Office. And then D. and I basically put together the grade nine one. That was a good experience. And so, teachers working together to improve curriculum, or ways of doing the curriculum, that was really rewarding. That was a real learning experience and I think that does make for expertise. (24:14)

An English department head who had initiated and organized a Shakespeare festival, was excited by the changes that come about when teachers work together on a special project:

So if I could give a lot of the teachers a dose of self-confidence a lot of them would be better people and better teachers. I think that is one of the things that is going to come out of the Shakespeare Festival, that the staff is going to see that they can do something, you know, we've taken on a big, big job and it's going to be successful and you'd be surprised, maybe you wouldn't be surprised because you've been involved in making things happen with large groups of people, but there were a lot of people that were really reluctant to get involved in the first place because they kind of had in the back of their minds, well, that's not going to work, and so they were holding back and then when they got the feeling that, well, maybe it is going to actually be successful and happen, then they kind of climbed on and started to help and I think it's going to be a wonderful feeling, it always has been for me.
when I’ve been involved in things like this when you finish something off and you’ve done a wonderful job at it and you just pat each other on the back and say what wonderful people we are and we’re probably good teachers and isn’t this good and everybody comes out of it feeling so positive and it will be good for the school, carry over for the school. (39:17)

Other teachers were identified as an important source of help and encouragement for a colleague whom they might find in a “burned out” condition. Once again, mentors were suggested:

There’s the possibility of developing a mentoring program within the school. If this person could work with somebody else and enjoy their teaching style, then maybe the two of them could work together to co-plan the kinds of activities that the other teacher’s going to be doing with perhaps supervisor’s type feedback so that the teacher could then get the non-judgemental kind of feedback on the changes that are occurring in the classroom. (4:10)

I’d encourage a mentor almost. By mentor, it doesn’t really have to be an older mentor (we think of mentors as being old) but somebody to go and help that person and share information, share enthusiasm, and share encouragement with them. So there was another person interacting with them and just showing them, “Did you see the poems that these kids in my class wrote?” Share it with them. (39:12)

Observing other teachers was another suggestion for resuscitating those “burned-out” colleagues.

I’d also try and get them to come in and watch lessons that I was teaching and another good teacher was teaching and that kind of thing. I find that that’s a hard thing to do. Teachers don’t want to do it at either end of the scale: they don’t want people to come into their room and they don’t want to go and sit in other people’s rooms for some reason. But that’s something that I’d work on. (39:12)

Team teaching was suggested as a means of encouraging a colleague. An English teacher made this proposal:

Another good thing would be, if a department head had prep time where they could team teach, because then you could try new things together without the teacher feeling that if it doesn’t work, what the hell am I going to do. And I’ve done that before and that works really well. (7:19)

Other teachers, then, were identified as the greatest source of ideas, inspiration and encouragement for their colleagues. In the school system there were other personnel as well who were mentioned as a source of ideas and inspiration. Four subjects discussed student teachers as catalysts for their own development. One teacher said, “I think student teachers can be an energizing way of increasing the creativity of the teacher” (1:12) and another
said, “Student teachers are great. They have the latest ideas” (6:2). A third teacher explained:

Actually having student teachers is useful because again you see something else going on. You watch them and say, “Oh, I do that, too, and I wouldn’t be happy with that”. So then you can change things. (16:5)

Administrators were rarely mentioned as catalysts for change; noteworthy, however, was the comment of a mathematics teacher who explained that encouragement from his principal had made a great difference to him:

I had a principal whom I consider the best principal I ever had. He came into the school and told me I was the expert and you develop a program and he allowed me to free wheel, to do anything I wanted to and he backed it. And that’s when it started. And I tried things and worked on things. You know, basically, when you’re given a free hand and you have an idea what you want to do you can try different things and you’re not stopped because some say you can’t do it and this really won’t work. We were just allowed to do our own thing. Not everything was perfect. There were things that didn’t work out, but you make a mistake, you learn from that and you build up the program and that’s just little step by step things through experimenting and allowing to free wheel and once that was established, whoever came in after that pretty well went along with it. We had a few set-backs on certain principals but most of them let you do your own thing and that’s so important if you want to develop. (17:4)

Another teacher, however, reported quite the opposite situation:

I wanted to try something. And I wanted to try something where I couldn’t guarantee that I would cover all the topics in the course outline and I couldn’t guarantee that those kids would be prepared to write a cross-grade exam. I couldn’t guarantee it. (30:11)

This teacher was not allowed to “free-wheel”.

The people that teachers mentioned as stimulators that move them toward increasing expertness included then, for the most part, their colleagues. Also mentioned were student teachers and administrators, the latter not always positively.

Professional development activities. As well as discussing the use of their own resources and those of other people as catalysts for change, teachers spoke about professional development activities, some that had helped them and some that had been disappointing.
Professional development activities may be classified as pre-service and in-service activities. With regard to pre-service training, four teachers of the forty referred to the fact that their development as teachers began with their teacher training programs. Two of the four had been teaching for ten years or less, one was in the experience group, eleven to twenty years, and the fourth had taught for more than twenty years. Statements about teacher training programs were usually brief and to the point. Two comments, however, presented impassioned, but opposite points of view. One teacher said:

I guess I had an extra advantage over a lot of people. When I went through university, I had two professors that I guess became my idols. They were such perfect opposites and were equally effective. It gave me the idea that the approach could change and give equal benefit. G. G.’s the type of person that worked on the enquiry method to get students involved: “You love science, this is really neat. Try, try, try”. And students loved him. He had excellent, excellent results. J. Y. was more traditional: “This is the program. This is the curriculum. Do it”. And he was incredibly strict. So I wasn’t too concerned at that time about was I going to make the perfect approach. (23:8)

There was also, however, a sadly different comment:

When I went into teaching education I was very disappointed because for the first time I didn’t have one prof that really inspired me. I was very disappointed and felt like this is just something to get through. And so the methodology courses were sadly lacking I felt and I really entered teaching on the basis of using the teachers from the past as my inspiration and role models and I had to learn as I went. So probably when I started teaching, I feel that I didn’t have a clue, just didn’t have a clue and I didn’t think I would make it really. I didn’t know if I would last (27:2)

The designation workshops was used in this study to include all activities identified as conferences, professional development activities, in-service activities, and workshops. As a means of developing expertness, some teachers discussed workshops as a positive experience, some as a negative one. First, some statements appreciative of workshops:

Lately the ProD for English has been the most exciting stuff I’ve ever been in. What they’re learning how to do now, “they” being the presenters, [is to] actually put you through the process. It’s process teaching, that’s what it is. (7:4)

And from another English department head:

I think it is an exciting time to be teaching right now. I think the research that is being done right now has real validity. And I think teachers can see it making a difference in their classroom. (8:4)

Some teachers, however, did not find workshops helpful:
I learn [at workshops] if there are other teachers you can talk to, but a workshop's not so much people handing you ideas. We've had some of these people into the district, supposedly with all these sure-fire ideas. You walk away wondering, well, everything went through my fingers. Where were all these ninety-nine ways to encourage students. Where was it? (15:3)

Professional development days—I've been to dozens and I suppose hundreds, four or five a year for twenty-five years. Most of them I found were of minimal benefit. A number I would say were quite useless. (18:3)

Well, there has always been the in-service you require to teach at a certain level. But we're talking about past that level. Past scratching the surface. I haven't been to any in-service that I could use for years. I put them on, I don't take them. (9:4)

A workshop on peer supervision was roundly criticized and an alternate plan suggested:

After about the first three hours I said, "Well, a lot of these things are just check lists". For example in examining a questioning technique, do I ask more boys than girls questions or whatever. Why wouldn't I go to the real experts and ask one of the kids to do it? Why go through pre-conferencing and post-conferencing and having coverage for someone else's class when I could say to Jeff, "Here's my seating plan. When I ask a question, would you tick off the student's name?" They really are the authorities on this. (19:15)

Another suggestion for improvement was made:

We have these professional days, and we have these instant reminders or shows, three hours of someone telling you this is going to work. But what we need is in-school educators that can come and actually share a two-hour demonstration or performance in front of fifty teachers or whatever. I think if there were some resource person or persons that could come and actually work with us, I think all the teachers would love to see that. (21:14)

Someone cited district support:

During the last few years, especially in our district, there are all kinds of funds for teachers who are really keen on up-grading themselves. (38:3)

One teacher who criticized past experiences in workshops, was hopeful about their improvement:

Because I remember as short as five years ago going to workshops and sitting there and being very angry.... I remember one of them whose topic was The Effective Classroom and basically it boiled down to, not the effective classroom, but the efficient classroom... And the same thing with Supervisory Skills which I also took. You know, where you collect data on time on task and how you move around the classroom.... I think five years ago in-service had a bad reputation. And luckily it's changing. (8:4)
The most frequent workshops mentioned were those about "Cooperative Learning". In all, fifteen teachers mentioned this technique either in their discussion of workshops or in an explanation of how their teaching techniques had changed since they started to teach.

Of the eighteen teachers who discussed workshops as a means of acquiring expertness, only four mentioned it as the prime factor.

Some teachers stated that they learned to be experts because of their reading. English teachers in particular claimed that they get a lot of their ideas about content and methods in this way. They read journals (from the National Council of Teachers of English, the Canadian Council of Teachers of English and the British Columbia English Teachers Association), catalogues, and textbooks. Social studies teachers mentioned keeping up-to-date with newspapers and magazines. Other teachers cited textbooks and "units" developed by their colleagues.

Teachers have stated, then, that their sources of stimulation are their own motivation, other people, and professional development activities. We turn now to examine what was said about the way ideas generated by these incentives became part of a repertoire of teaching expertness.

Integration of New Knowledge and Skills
Teachers described their progress from novice to expert as being dependent on, first, their own drive toward excellence and, second, on their experience.

Personal drive toward expertness. It has been reported above that the subjects discussed certain personal attributes as components of teacher expertness (see pp. 80 - 84). They have also identified a personal attribute, self-motivation, as a stimulus that prompts them to work toward their own expertness (p. 89 - 90). Still other personal attributes were seen as forces which were needed if new insights were to be implemented and were to
become part of the teacher’s repertoire of teaching skills. The last of these personal attributes have been classified as “a personal drive toward expertness”.

One teacher said, “I have enough inner resources to turn failure into success” (12:15). Another spoke about a particular “inner resource”, energy:

As far as I’m concerned, the secret to any lesson is energy. You come in, you’re excited about what you’re teaching, you’re excited about kids, and then, if you have the energy, you can make just about anything work. (35:3)

Self-confidence was also mentioned as a necessary ingredient for making ideas work:

We start out so insecure and as you get more security and confidence in yourself as a teacher and maybe confidence in yourself as a human being, maybe you are able to do more things. I really think, you know, and maybe this is a philosophy of life as well as education, but I really think that so many bad things are done out of insecurity, personal insecurity: people lashing out at somebody else because they perceive that other person criticizing them, putting them down or doing certain things, whether it is in their job or personal life, because you’re trying to make yourself look good in the eyes of people. In other words, you don’t have that inner confidence that allows you to then get one step past and do things that you really think are proper and appropriate and so on. (39:16)

Teachers discussed the effort that is needed to develop expertness. One teacher said:

It occupies a lot of my time, both in actual work and in thinking about it. The more effort you put in in the first place, the easier it’s going to be for you in the second place. (39:2)

A physical education teacher spoke about the need for competitiveness to drive a person to greater success as a teacher:

You have to be competitive as a person and not be satisfied with mediocrity. That is a really big one! Trying to be better than you are at that point. And that has involved research and theory and has involved an awful lot of time spent outside the school...When I started teaching I had very little expertise and to become a so-called expert took a lot of time and effort outside the framework of school. (9:3)

*Experience.* One teacher said, “It’s almost all been experience” (9:3), and another, “Experience—what’s worked, what hasn’t worked” (5:3). Some teachers expanded upon their thoughts about experience as the way expertness is developed:

The refinement of technique, the ability to get across difficult concepts in a variety of different ways because you have developed flexibility, can only come with.
experience. You get older and you get wiser and I think the more years you teach—you keep track of successful lessons and you work on those. (4:14)

...I’ve done this for the last two years or three years. I’ve always presented this topic in this way and I think it’s time to just think about a whole new approach to presenting something. And you try it and sometimes it bombs and sometimes it works and sometimes it works with one class and not another... (14:2)

Through experience. Gradually changing and evolving one’s teaching style. Realizing, hey, I’ve done this for two years in a row. maybe it could be improved a little bit. How could it be improved? (10:2)

In terms of fine-tuning and adding, that has just been like a snowball that has become more streamlined as time has gone by. (27:4)

Teachers often confessed to their initial lack of expertness:

Experience. I learned on the job and I think ninety percent of teachers are learning on the job. I don’t make any bones about it—I was not a good teacher in my first year. I had to learn. I spent many hours learning. I’ve got better at it with experience. There is no doubt in my mind. (20:4)

It’s experience. In the last couple of years I’ve seen first-year teachers getting in situations and woe, they obviously haven’t anticipated the consequences. They have to anticipate and see the path to take. I guess experience is the big one for me. (10:9)

Experience. I dislike the fact that it takes me eleven years to get to my maximum pay, but there is at least some background to the fact that it’s taken me, maybe not eleven, but certainly some years to become a better practitioner than I was when I started. (16:16)

Look at these SFU students. Their educational credentials are incredibly much better than mine. These guys have got the technical knowledge of their subject areas. And that’s a given. But they need some practice. (16:16)

Teachers also alluded to continuing trial-and-error experiences:

I’ve tried it in class and I seem to find that things work or they don’t work. I know that some lessons fall flat. They’re not very good. And others work out quite well. (21:2)

The need to “field-test” ideas was mentioned with reference to workshops and to the use of technical knowledge:

The first one is experience. No idea is valid until it’s tested out in the classroom. It won’t even be valid until it has been in different situations. (22:12)

Experience. It takes a long time to be an expert in anything and to be an expert in P. E. I think you really need to have lots of hands-on experience. (26:8)

Experience. Doing it. Not reading it, but doing it. We have people that come with a BSc in zoology and chemistry and physics or whatever, but they have very little
expertise in a sense because they have no experience. They have lots of knowledge, but it's theoretical, not practical. (30:17)

The subjects reported, then, that ideas become integrated as part of a teacher's expertness as a result of personal striving for excellence and by means of practical classroom experience.

Summary
In this section, teachers' assertions about expertness and its acquisition have been presented in three groups: statements that describe the expert teacher, those that identify the stimuli which spur teachers toward increased expertness, and finally, statements that tell how new ideas or techniques are incorporated in the teacher's inventory of skills and knowledge. A recapitulation of teachers' comments is offered in Summary 5-A.

TEACHER-TALK EXAMINED

The narrative form of the presentations above has provided the basis for some further examination of respondents' comments. The findings were explored for patterns. Three examinations were made: (1) the degree of agreement about certain elements of expertness and its acquisition, (2) whether certain statements about teacher expertness and its acquisition were usually made in conjunction with certain other statements, and (3) whether selected biographical or situational elements appeared to have made a difference to teachers' stated beliefs about expertness.

How Many Teachers Said That?
Some teachers discussed certain elements of expertness at length and sometimes they referred to an element several times. However frequently it was stated, each element was recorded only once for each teacher who mentioned it. It was thus possible to express the degree of agreement about elements in terms of the number of teachers who referred to it.
Summary 5-A. Teachers' Comments about Expertness and Its Development

The expert was described as a person with

- certain personal attributes
  - innate attributes—talent, ability to learn, the “right” attitude, with-it-ness, commanding presence, magic
  - attributes that can be cultivated—self-confidence, enthusiasm, a positive attitude, a sense of humour, an ability to laugh at oneself, commitment

- an ability to respond to students which included
  - understanding students—in their social milieu (their self-esteem, their home life), the bureaucracy; in the learning situation (“reading” them, being flexible)
  - liking them and enjoying working with them
  - respecting them

- a knowledge of their teaching area.

The generation of ideas was seen to stem from

- self-motivation

- other people, including
  - teachers
  - pre-service (secondary school teachers and practicum supervisors); in-school colleagues (through informal contact) through peer supervision, mentor programs, team-teaching; teachers from outside the school (when marking government exams), by working on curriculum committees, on special projects
  - student teachers
  - administrators

- professional development activities
  - pre-service training—as a helpful experience; as a disappointing experience
  - workshop—as helpful experience; as disappointing experiences; co-operative learning as most often cited
  - reading—journals, catalogues, newspapers, magazines

The integration of new ideas is a result of

- a personal drive toward success which includes inner resources, energy, self-confidence, effort, competitiveness

- experience which is described as refinement of technique, fine-tuning, learning on the job, trial-and-error, field-testing ideas

Table 5.1 displays the number of teachers who mentioned each element. This account of the numbers of teachers who referred to various elements should be viewed as a rough measure for a number of reasons. It has been noted, for instance, that some comments about workshops were positive and some were negative. This accounting is
presented, therefore, as an indication of the agreement among teachers about the importance of mentioning certain elements.

Table 5.1. Numbers and Percentages of Teachers Who Mentioned Certain Elements of Expertness and Its Acquisition

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>TEACHERS N=40</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal attributes</td>
<td>33</td>
<td>82.5</td>
</tr>
<tr>
<td>Responding to students</td>
<td>29</td>
<td>72.5</td>
</tr>
<tr>
<td>Knowledge of subject area</td>
<td>24</td>
<td>60</td>
</tr>
<tr>
<td>Other People</td>
<td>25</td>
<td>62.5</td>
</tr>
<tr>
<td>Workshops</td>
<td>17</td>
<td>42.5</td>
</tr>
<tr>
<td>Reading</td>
<td>16</td>
<td>40</td>
</tr>
<tr>
<td>Experience</td>
<td>20</td>
<td>50</td>
</tr>
</tbody>
</table>

Table 5.1 indicates that half or more than half of the teachers discussed each of the elements other than workshops and that no element was discussed by all of them. It also indicates that discussions of the personal attributes of teachers were a dominant feature of teacher-talk about expertness. An additional analysis of statements about personal attributes reveals that even more discussion was centred on this element than Table 5.1 indicates. Although each teacher’s comments about personal attributes were counted only once for Table 5.1, sixteen teachers did discuss this element both with regard to descriptions of the nature of expertness and also with regard to the attainment of expertness. In all, thirty teachers discussed personal attributes as an element of teacher expertness and nineteen teachers discussed that element with regard to the attainment of expertness (see Table 5.2).

Table 5.2. Numbers of Teachers Who Discussed Personal Attributes

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>As an element of expertness only</td>
<td>14</td>
</tr>
<tr>
<td>As a means of attaining expertness only</td>
<td>3</td>
</tr>
<tr>
<td>Both as an element of expertness and as a means of attaining expertness</td>
<td>16</td>
</tr>
</tbody>
</table>
The only element other than personal attributes that was commented upon as descriptive both of the nature of teacher expertness and of its attainment was experience. The record of the number of teachers who discussed experience in either or both instances is displayed in Table 5.3.

Table 5.3. Number of Teachers Who Discussed Experience

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>As an element of expertness only</td>
<td>4</td>
</tr>
<tr>
<td>As a means of attaining expertness only</td>
<td>12</td>
</tr>
<tr>
<td>Both as an element of expertness and as a means of attaining expertness</td>
<td>4</td>
</tr>
</tbody>
</table>

Although only twenty different teachers discussed experience, four teachers stated that it was not only an essential component of expertness but was also a way of attaining expertness. No association was found, however, between this emphasis on experience and mention of other elements of expertness or with subsequent analyses of the elements.

Did They Say That, Too?

Further insight with regard to the findings emerged with the investigation of the frequency with which teachers made statements about a certain element of teacher expertness and its acquisition in conjunction with statements about a certain other element or elements. This investigation of conjunct elements resulted in the display presented in Table 5.4. For this display, the element *activities* was set out in two parts, *workshops* and *reading*. The separation was made because the findings about teachers' references to these two kinds of activity were quite different: comments about workshops were often negative whereas comments about reading were always positive. The elements workshops and reading were examined separately to ascertain whether either one was discussed in conjunction with any of the other elements.
Table 5.4. Number of Teachers Mentioning Each of Seven Elements of Expertness and Its Acquisition Who Also Mentioned One or More of the other Six

<table>
<thead>
<tr>
<th></th>
<th>N=33</th>
<th>N=29</th>
<th>N=24</th>
<th>N=25</th>
<th>N=17</th>
<th>N=16</th>
<th>N=20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal attributes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responding to students</td>
<td>24</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of subject area</td>
<td>20</td>
<td></td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other people</td>
<td>12</td>
<td>11</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Workshops</td>
<td></td>
<td></td>
<td>10</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Of those thirty-three teachers who discussed personal attributes, more than half also discussed responding to students, knowledge of subject matter, other teachers, and experience. Fewer than half of them, however, discussed workshops or reading.

More than fifty percent of teachers who commented on ability to respond to students also commented on personal attributes, knowledge of subject area, and other people. Workshops, reading, and experience were less frequently conjoined with the mention of ability to respond to students.

Knowledge of subject area, frequently mentioned with comments about personal attributes and responding to students, was less often mentioned with workshops, reading, and experience.

Of the twenty-five teachers who mentioned other people as a source of stimulation, less than half discussed workshops, reading, and experience. This factor was more often
mentioned in conjunction with personal attributes, responding to students and knowledge of subject area.

Workshops and reading were frequently mentioned by the same teachers. These activities as stimulants for change were mentioned by those who also discussed personal attributes, responding to students, knowledge of subject, and other people. They were less often mentioned by those who discussed experience.

Experience was most frequently mentioned by teachers who also discussed personal attributes and responding to students. It was less often conjoined with statements about knowledge of subject area, workshops, or reading.

In summary, this account of the frequency with which teachers made statements about one element of expertness and also made statements about another element did not of itself lead to salient findings. The display is of increasing interest to the study, however, when the findings are added to the analyses that are reported in the following two chapters.

Who Said That?

It seemed possible that some elements of expertness would be excluded in some teachers’ discussions because of different lengths of teaching experience or perhaps because of gender differences. Particular work situations were also considered as a possible reason for variations in the discussions. The biographical factors were considered first.

Biographical factors. Teachers were sorted into three groups according to the years they have taught, one to ten years, eleven to twenty years, and twenty-one to thirty-three years. Table 5.5 displays the teachers’ years of experience and the teachers’ gender in relation to the number of comments about each of the elements recorded. These
associations did not yield chi square values which suggest significant differences (see Appendix F).  

Table 5.5. Numbers of Teachers with Certain Biographical Characteristics in Relation to Discussion of Elements of Expertness and Its Attainment

<table>
<thead>
<tr>
<th>ELEMENTS</th>
<th>YEARS OF EXPERIENCE</th>
<th>GENDER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-10</td>
<td>11-20</td>
</tr>
<tr>
<td></td>
<td>N=9</td>
<td>N=21</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Personal attributes</td>
<td>N=33</td>
<td>7</td>
</tr>
<tr>
<td>Responding to students</td>
<td>N=29</td>
<td>7</td>
</tr>
<tr>
<td>Knowledge of subject area</td>
<td>N=24</td>
<td>4</td>
</tr>
<tr>
<td>Other people</td>
<td>N=25</td>
<td>8</td>
</tr>
<tr>
<td>Workshops</td>
<td>N=17</td>
<td>2</td>
</tr>
<tr>
<td>Reading</td>
<td>N=16</td>
<td>4</td>
</tr>
<tr>
<td>Experience</td>
<td>N=20</td>
<td>5</td>
</tr>
</tbody>
</table>

Situational factors. The findings were further explored to determine whether or not the type of school organization or the subject area being taught affected teachers' stated beliefs about expertness and the way it is acquired. Table 5.6 shows the numbers of teachers in the three types of school, junior, senior, and junior/senior secondary who discussed each of the elements of expertness and its attainment. This table also gives an account of the numbers of teachers in each subject area who made statements about each element. Once again, the associations did not yield chi square values which suggest significant differences.

1 The possibility that the findings associated with biographical or situational factors were attributable to chance was 5% or more in all but one instance, namely, other people as a source of ideas in relation to years of experience. Although in this instance there may be statistical significance, there is not likely to be practical significance in the finding.

2 See Footnote 1.
Table 5.6. Assignments of Teachers and Number Who Made Statements about Expertness and Its Attainment

<table>
<thead>
<tr>
<th>ELEMENTS</th>
<th>TYPE OF SCHOOL</th>
<th>SUBJECT AREA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>J</td>
<td>S</td>
<td>J/S</td>
</tr>
<tr>
<td>N=16</td>
<td>N=13</td>
<td>N=11</td>
<td></td>
</tr>
<tr>
<td>Personal attributes</td>
<td>14</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Responding to students</td>
<td>9</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Knowledge of subject area</td>
<td>7</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Other people</td>
<td>12</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Workshops</td>
<td>5</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Reading</td>
<td>7</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Experience</td>
<td>9</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>

TEACHER-TALK DISCUSSED

This discussion of the data which have been reported as Teacher Talk Presented and Teacher Talk Examined considers the findings in relation to one another and to the literature on teacher expertness.

Certain personal attributes, according to many of the teachers participating in this study, are characteristic of expert teachers. Time and again it was stated that, to become an expert teacher, a person must either have been born with certain personality traits or have cultivated them. Several of the subjects talked about the need for “the right attitude in the first place” in order for teachers to become expert. Without that initial attitude, it was said, a person could become a competent teacher, but never an outstanding one. This belief has not been solidly confirmed or disconfirmed by research. Rybash (1986), discussing expertness in general contexts, found that individual differences in genetic mechanisms may limit the development of skilled behaviour, but that, for the most part, expertness is “self-constructed and not pre-wired” (p. 163). Rosenholtz (1989) has presented another finding: in a comparison of “learning-enriched” and “learning-impoverished” American schools, she found that it tended to be the teachers in the impoverished schools who regarded teaching
as instinctive and teachers as born rather than made. Rosenholtz suggests that these teachers, depending on their internal, individual resources, did not use colleagues or workshops or other resources to further their talents (p. 86). Quite a different point was made by the teachers in the present study: when they spoke about internal, individual resources they indicated that these personal attributes were basic requirements upon which expertness could be built, but without which it could not be achieved. Several of these teachers also stated that, in order to attain expertness, one of the key personal attributes was the ability, willingness, or zeal to learn from others and from experience.

Daniels (1975, cited in Zeichner, 1981-82) made a distinction between technical skills and orientational skills. Classified as technical skills were techniques or procedures which could be acquired through training; orientational skills, on the other hand, included attitudes and ways of looking at the world, skills that were not directly trainable. Teachers in the present study, by the frequency with which they discussed personal attributes, quite clearly emphasized the orientational skills rather than the technical skills.

Sternberg (1985) has stated that:

Experts differ in knowledge from non-experts in levels of knowledge, almost by definition, and they differ as well in the ways they organize knowledge. But the fundamental question may be why they become experts whereas others, even after equally long hours of study, do not. It is at least as important to understand the acquisition of expertise as it is to understand the results of this acquisition. (Cited in Rybash, 1986, p. 157)

In this study, of course, we are not only concerned with the acquisition of knowledge, but with the use of knowledge. But Sternberg’s question about experts and non-experts is fundamental and has been answered by some of our subjects to the effect that it is certain personal attributes of the experts that make them different from the non-experts. When teachers described the expert, they usually identified these personal characteristics; when they discussed the way new ideas were sparked, they talked about the expert’s initiative and creativity; and when they described the way ideas were fired to implementation, they
said that the change had come about largely because of the expert's own personal resources.

What might be called the "personality motif", then, has been a dominant feature in teachers' statements about their own expertness and that of others. It is important to note that this motif may also be seen to underlie several other conceptions of expertness and its attainment that the teachers discussed. For instance, when they talked about the expert's ability to respond to students, the teachers did not appear to emphasize the teacher's knowledge of students' cognitive development or social growth or even ways of learning. They talked, rather, about the expert's empathic understanding of the social and personal needs of students. And so it was the teacher's personal characteristics which were largely responsible for this ability to work with students. Again, when the subjects discussed knowledge of subject area, they were more inclined to point out the expert's personal desire to keep on learning and to have an open mind than to be erudite about a certain field of knowledge.

Most of the teachers in this study, then, stated that teacher expertness was dependent upon personal attributes. Some teachers also mentioned knowledge of subject area as an element of this expertness. The fact that many teachers did not mention this factor may have resulted from the design of the study. The department heads who were interviewed were experienced teachers for whom knowledge of their subject was assumed to be a prerequisite. They were not novices and they had mastered the content in their teaching area. As one teacher pointed out, we are not talking about basics here, but "fine-tuning".

We turn from descriptions of the expert teacher to the question of how expertness was attained. Teachers indicated that they had been inspired or assisted most of all by their colleagues. Although some teachers also appreciated workshops and some relied upon what they read, the greatest source of ideas for improvement was reported to be other teachers. This finding may be compared with that of Rosenholtz (1989) who discovered
that in “learning-enriched” schools, ninety percent of the teachers surveyed identified other teachers as the source of their new teaching ideas (p. 97). Although teachers in the present study mentioned as sources of ideas teachers from their own school days, from their student teacher practice, and from their first years in the classroom, the most frequently mentioned stimulators were those close at hand, often in their own school. Attendance at workshops was mentioned as a means of attaining expertness by only 42.5 percent of teachers and many of those who did mention workshops stated that they did not find them helpful. At the same time as these data were being collected from teachers, that is, in November, 1989, Crawford Kilian, a columnist in one of the area’s two major newspapers, was lauding the initiative of a neighboring school district which was planning a conference for later in that month which would bring in “major educators from all over Canada and the U.S.”:

Such a conference brings regular classroom teachers into direct contact with some of the best thinkers and researchers in education. It offers a rare chance to learn about effective new techniques. (The Province, November 7, 1989)

This perception of how teachers learn to be experts is not in accord with the data from this study.

Several teachers interviewed for this study stated that new ideas did not become part of their repertoire of teaching skills until they had been experienced. This need for experience in the attainment of expertness has also been emphasized in the literature by those who are concerned about staff development. Bents and Howey (1981) cite Knowles’ (1978) principles of adult learning when they declare that “Experience is the richest resource for adult learning; therefore, the core methodology of adult education is the analysis of experience” (p. 33). Our teachers mentioned their own motivation to acquire expertness and the instigation of other people more frequently than experience as the richest resources for learning, but many did affirm the importance of experience.

In this chapter, then, the presentation, examination, and discussion of teachers’ descriptions of the nature of expertness and its attainment have permitted some detailed
findings to emerge. These findings, however, provide an incomplete picture without those which are presented in Chapters 6 and 7 after the data are analyzed from other perspectives. It is then that salient findings can be discussed.
CHAPTER 6

THE WISDOM IN TEACHER EXPERTNESS

This study was designed to follow two lines of inquiry: first, inquiry about the wisdom of expert teaching practice and second, inquiry about the wisdom of expert teachers. In Chapter 5, data from teacher interviews were analyzed to discover what teachers revealed about the nature of teaching expertness and how it was attained. In this chapter, the data are analyzed to explore the possibility of characterizing the wisdom of the expert teacher in order to cast further light upon teacher expertness.

Teachers were asked five questions which were adapted from a working framework designed by Baltes and his associates (in press) for the purpose of assessing wisdom in protocols (see above, p. 55). Each question pertained to one of five wisdom criteria, factual knowledge, procedural knowledge, contextualism, relativism, and uncertainty. The findings presented in this chapter emerged from the teachers’ responses to the five questions. An examination of the findings was undertaken (1) to discern the wisdom criteria for which there was most evidence in the protocols and to ascertain whether there were patterns in the way different criteria were evidenced in conjunction with each other, (2) to discern whether there were effects of certain biographical and situational factors upon the presence of wisdom in teacher expertness, and (3) to discover whether there was any relationship between the way wisdom criteria were met in the protocols and the way the elements of expertness and its attainment were discussed as presented in Chapter 5. The current chapter concludes with a discussion of the findings about the wisdom in teacher expertness.
ASPECTS OF WISDOM: TEACHER RESPONSES

The five questions pertaining to the wisdom criteria are set out in Appendix B. The characteristics of ideal responses and criteria for rating three scale points for each are included with the questions. Appendix E shows the ratings yielded by each protocol on questions one to five. Total scores for each protocol and for each criterion have been calculated. Appendix E also includes a frequency distribution of the ratings on each criterion together with mean, median and mode calculations.

In this report of the findings, the analysis of the responses to each of the wisdom questions is presented in turn. Sample quotations from the protocols are provided.

Criterion 1: Factual Knowledge

In order to gain an appreciation of the extent to which factual knowledge was evident in the talk of expert teachers, the subjects were asked, “Have there been many changes in the curriculum in your teaching area in the last five years? (If ‘Yes’) What are these changes?” It had been established that an ideal response, yielding a rating of seven, was one which would indicate in-depth knowledge of the content of the curriculum and an awareness of its continuing evolution (see Appendix B).

An example of a response which was considered ideal was one offered by a physical education teacher who discussed a major change in the curriculum in his area. He explained the reasons for the curriculum change, sketched the focus and content of the new program, discussed student reaction to the curriculum and participation in it, and commented upon teacher acceptance of the program and readiness to implement it. The response of a science department head also yielded a rating of seven. This was a teacher with fifteen years of experience. He said that he was excited about the curriculum change that had taken place in his teaching area and about the possibility of continuing positive
change. He described a 1986 curriculum revision which had resulted in a more usable text than the previous one, had formulated a curriculum guide which stated specific learning outcomes, and had offered information about supplementary resources, reference books and audio-visual materials. He said, "It became much, much easier to plan courses and much easier to direct students". He also spoke of his involvement in the continuing evolution of the curriculum:

We’ve come a long way in the district in terms of changes in that we are beginning to develop our own program within the district. We are looking to developing a curriculum for the advanced placement program in the district. (4:4)

The continuing evolution of the social studies curriculum was clear to another teacher who described the development of materials “tailored for British Columbia rather than an American book that happens to be just useful” (33:5). Some teachers described an evolving changes in the process of teaching social studies:

Actually there have been tremendous changes in the social studies curriculum. I think you’re aware of a lot of the changes. The whole emphasis on process as opposed to content—and I think that’s always been my focus, although I don’t think it was quite as explicit. Maybe the curriculum made it more explicit from my point of view. I know the curriculum is not taught that way in a significant sector of the teaching population, but I think that’s the big change—problem solving, decision making, working in groups towards an end like that and that’s something that I just started doing four or five years ago. (24:4)

Those responses, therefore, that showed both a knowledge of the content of the curriculum and of the evolving process of its development, yielded ratings of seven.

An example of a response that yielded a mid-range score was one which described changes to the social studies curriculum. The teacher in this instance said in part:

There is all new material, but it hasn’t changed that much. The grade ten course, except the shift to Western Canada which I like, isn’t all that much different. So they just shuffled the deck and put things in different places, moving the Middle Ages from the grade eight to the grade seven [program]. (15:5)

The response was considered less than ideal because, although this teacher appeared to be familiar with the curriculum, he did not indicate an awareness of curriculum development as an evolving process.
Another description of change to the social studies curriculum yielded a low score. The teacher in this instance spoke at some length, but almost all of his commentary was about the need to be aware of even minor changes to the curriculum (changes which he did not describe) in order to be certain that students succeeded with the government exams.

Examples have been provided, then, of responses which yielded high, mid-range, and low ratings on the first criterion, factual knowledge. Taken together, the responses yielded scores that ranged from two to seven on a seven-point scale. The mean score was 5.1 (see Appendix B). The frequency distribution of scores on the factual knowledge criterion (Table 6.1) shows that eleven of the forty protocols yielded an ideal response and eleven more yielded scores of five or six, that is, scores above the mid-range score of four. Fourteen protocols yielded the mid-range score and three rated low scores.

### Table 6.1. Frequency Distribution of Scores on Criterion 1, Factual Knowledge

<table>
<thead>
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</table>

**Criterion 2: Procedural Knowledge**

Teachers were asked, “Have your teaching methods or techniques or your ways of working in the classroom changed very much since you began to teach?” It had been established that an ideal response, yielding a rating of seven points, would indicate that the subject understood the nature and diversity of possible teaching techniques and was open to the possibility of varying teaching strategies (see Appendix B).

A protocol which yielded an ideal response was provided by a science department head. He said that what had changed for him “had more to do with a kind of mind set than
anything else” (16:7). He described how, just after he began to teach, there had been a shift away from discovery learning to direct teaching:

We’d do two or three labs, give them some equipment, let them look at it, give them some questions to do about it and direct their thinking once they’d made their observations.

He went on to explain how he has started doing “much more process oriented things”. He spoke of the co-operative learning movement and the way it had affected his teaching.

Other extracts from responses to the question about procedural knowledge, first from a social studies teacher and second, from an English teacher, were part of discussions that yielded scores of seven:

I’ve always loved doing a good show. I stand in front of the class and I just let her rip and have the ideas coming forth. And I like being a showman in that sense. But ultimately the interest has to come from the kids. I love getting a salary for doing a show, but really I’m the one who’s learning and I’m the one who’s having fun. And the biggest question I have in mind is how do I deal around so they start discussing, they start exploring, and they want to go further. And that is for me the only true question around teaching. That’s it. That’s what has brought me towards greater and greater student involvement. (22:8)

I always envisioned that teaching would be me standing in front of the class and telling them things. It seemed to be the way it was done when I grew up and it was fine for me. And if someone had said to me even five years ago, “Well, you’re going to be breaking into smaller groups and doing this kind of thing,” I would have hollered at them, “No. I’m the most conservative person on the staff”. But, in fact, I do a lot of co-operative learning with the students. And I very seldom any more use the lecture system. Very seldom. (19:7)

A mid-range score resulted from a protocol which recorded a teacher's conviction that teaching is a matter of personality and that a teacher has his own style which he modifies to a degree as it is appropriate (4:6). This teacher did not discuss the nature and diversity of possible teaching techniques.

A teacher who claimed to be “still a rookie teacher” said:

I’ve only taught for four years. The first two years I was more product minded, worried about whether I was going to get from A to B and now I’m starting to enjoy it more, enjoy the kids more, getting to know them a little bit better and smile more in the class. (40:3)
This teacher's response, although it did include further discussion of changes in classroom management, did not indicate an awareness of the possibility of varying teaching practices and so it, too, yielded a mid-range score.

Only two responses were awarded a score of less than four. One of these was a short statement to the effect that this person's teaching methods and techniques had not changed very much, that he still tries to present learning opportunities to the students, but in general, uses the command method. The second response that did not resemble the ideal response to any appreciable degree was from a teacher who said that pressure to meet the government exam requirements precluded the use of a variety of teaching strategies.

In all, responses to the question about procedural knowledge yielded ratings that varied through the whole range, from one to seven points. A frequency distribution of the scores best indicates this range (see Table 6.2). Fourteen protocols yielded ideal responses with scores of seven. Fourteen more protocols yielded scores above the mid-range. Ten protocols were scored at mid-range and two below that. The mean score was 5.4 (see Appendix E).

Table 6.2. Frequency Distribution of Scores on Criterion 2, Procedural Knowledge

<table>
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<th>Rating</th>
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<td>9</td>
<td>10</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Criterion 3: Contextualism

To assess the presence of contextualism in teacher expertness, the question was asked, “What change is needed for students and teachers to be more successful in the schools of tomorrow than they are in schools today?” The characteristics of an ideal response include an indication of awareness of the diversity of the factors which affect teaching and a
knowledge of how various contexts affect teaching and learning and of how they are changing (see Appendix C).

Only six responses were considered ideal according to the criterion. One of these ideal responses was from an English teacher who gave the impression of a great awareness of the many factors which affect teachers and students and their interaction in classrooms. She discussed problems of literacy and school drop-out and the way attempts are being made to alleviate these problems. She evinced concern about societal problems which she said were at the root of some educational problems. She discussed a seeming lack of relevance of some of the curriculum objectives to the lives of some students and emphasized the importance of listening to what students are saying. She concluded by noting that what is needed is:

...somehow to reconcile our expectations of curriculum and literacy and critical thinking and writing skills with what’s happening in our society as a whole and somehow or another to capture the interests of students and to become more responsive to what they think they need. (19:15)

Another English teacher’s appraisal of current educational practice displayed her awareness of the many factors which affect teaching and learning. She said that education in secondary schools is often seen to be “a ticket as opposed to a life-style” (7:11). She said that she would like students to see “...that education is a process, not a product that you grab and then you go out into the world and tell your kids to get one”. She also said:

I’m afraid they don’t take much away and do anything with it and I think that’s why it’s such a passive experience for so many of them. We’ve got to make connections for kids and you don’t do it with this little cellular stuff, you know, a bunch of little school houses under the same roof. It doesn’t work at all.

Another teacher discussed the need for flexibility, open-mindedness, and withitness, and the need to understand changes in our society which require that teachers, rather than giving information to students, help students access information. His comments were confined, however, to the need for change within the formal education field and did not embrace the broad context within which teaching is practised (28:4). This response yielded a score of four. A similar, somewhat parochial point of view was expressed by a teacher
who spoke about her ambivalent feelings with regard to the “whole thing of integration”.

She said:

On the one hand I think that, as an institution within our society, we have a responsibility towards all members, and yet at the same time, we’re an educational institution.... I see schools becoming sort of a socializing agent and taking care of societal needs, and the academic, which is also very important to me, seems to be de-emphasized. And the more integration we have the more that happens. I don’t even know if I’m seeking that change. (8:8)

A protocol which yielded a score of only one included a discussion of the matter of computer literacy alone (33:7). Another protocol which yielded a low score was one where the whole discussion centred upon the process of delivering information (20:12).

Many teachers limited their discussions to their own classroom, their own subject area, or their own school. As a result, fourteen responses yielded scores in the low range, one to three, and twelve responses yielded a score of four. Fourteen teachers discussed a diversity of contexts which they believed affected teaching and learning. These responses yielded scores ranging from five to seven (see Table 6.3). The mean score was 4.2 (see Appendix E).

Table 6.3. Frequency Distribution of Scores on Criterion 3, Contextualism

<table>
<thead>
<tr>
<th>Rating</th>
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<tr>
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<td>3</td>
<td>12</td>
<td>7</td>
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</tr>
</tbody>
</table>

Criterion 4: Relativism

The question used to assess relativism in teacher expertness was as follows: “Suppose that a teacher in your department tells you that he is ‘burned out’, that he no longer enjoys teaching, but, since he has a family to support and is fifteen years away from retirement, he must continue to teach. He asks your advice. If this is all the information you have about
the situation, what advice would you give him?” A response to this question was considered to be ideal when it indicated that the subject could reflect upon the teaching situation with a certain detachment and in the realization that there was more than one possible solution to the problem (see Appendix B).

An ideal response was offered by a social studies teacher who first expressed concern for the effect that the burned-out teacher would have upon the students. If that person were allowed to continue without help, “You’re robbing fifteen years of kids of everything” (35:11). The respondent made several suggestions about how the burned-out teacher might be “resuscitated”, including counseling, changing assignments, and, most of all, changing perspective:

Some of the guys I’ve talked to, they view kid as enemy, and as soon as you’ve done that, I think you’ve lost the battle. You have to somehow work your way through that one and see the kid again as somebody you work with, he’s your ally, he’s your friend, he’s your partner. (35:12)

Eighteen teachers suggested that the first step in the solution was an analysis of the problem, either by the person’s own efforts or with the help of professional counseling. One department head who made this suggestion also advocated a change of assignment.

I think sometimes we get locked in at one school for too long, and I think maybe if we moved teachers a little more, instead of them being there ten, fifteen, twenty years, they’ll get out of a rut and communicate with other people, and that will increase the joy of teaching again. (1:13)

This respondent did not offer other solutions, however, nor did he suggest a further analysis of the problem; therefore the response yielded a mid-range score.

The most frequently suggested solution was for a change in the work assignment of the “burned-out” person, either through leaving the profession permanently or temporarily, through a change in subject area or grade level, or through a change of schools. One teacher said:

I don’t want to work with anybody who is burned out.... We have to team teach in this area and we spend a lot of time together and if someone’s not holding up their end, then I don’t want to work with them and my suggestion to them would be to switch subject areas. (9:11)
According to the guide-lines for rating the responses to the question, more than one possible solution to the problem was required and, because this person did not offer solutions other than a change of assignment, the rating was at the lowest level, one. Some solutions that other teachers suggested were a change in teaching techniques, with the impetus coming from workshops, conferences, or courses, the observation of other teachers, involvement with colleagues as a team, the person’s own initiative in finding new approaches or methods, and, finally, consulting with an expert outside the school. It was also suggested that the revival of the “burned-out” teacher might be more likely if administrators or department heads showed appreciation and support.

The distribution of scores for this fourth criterion, relativism, is presented in Table 6.4. More than half of the protocols yielded scores in the mid-range or below it on this wisdom criterion. Only twelve and a half percent of the responses were considered ideal. The mean rating for this criterion was 4.3.

### Table 6.4. Frequency Distribution of Scores on Criterion 4, Relativism

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**Criterion 5: Uncertainty**

The question the teachers were asked was, “Do you think there is a right way to teach your subject”? It had been decided that an ideal response would be one in which the subject would state that there was more than one right way to teach his/her subject and would indicate that s/he respected the styles and methods of other teachers (see Appendix B).

One response that yielded a rating of seven included this statement:
I think there are many right ways to teach the subject. And any way that empowers students and makes them keen and makes them like the subject and makes them interested and engaged in what’s happening is the right way. The wrong way is looking at them like little vessels ready to be filled up with information. (28:6)

An English teacher referred to her experience as a student:

The English teachers I had in high school were so different and none of them was right, but they were all themselves and they all did very well and they came to school every day, working with kids and bringing their love of literature with them and their love of the process of learning. (27:10)

This teacher said, “I think it’s always right to teach with sincerity and enthusiasm and appreciation, that there’s a right attitude to have”. The complete response yielded a rating of seven.

Another comment, part of a protocol that yielded an ideal response, reflected the teacher’s awareness of the way techniques must vary to suit students:

One of the things I learn from my students is about how to teach and, because I have different students every year, I have different ways of looking at learning. (7:22)

Responses that did not conform to the guidelines for an ideal response and were awarded scores in the low range tended to be those where the question was not answered, the discussion centring instead upon attitudes toward teaching and learning. Some teachers stated that there was no right way to teach, but attached various riders to their comments. One said, for instance, that there was no right way as long as the curriculum was covered (20:18). Although these teachers might have been knowledgeable about a variety of teaching styles and methods, they did not give the impression that this was so.

Thirteen protocols yielded scores of four. These responses tended to be either very brief or very general, giving little information about any choice of techniques that could be made from the many possible ways to achieve success.

In all, twenty-two scores were above the mid-range and five below (see Table 6.5). The mean was 4.8 (see Appendix E).
Table 6.5. Frequency Distribution of Scores on Criterion 5, Uncertainty

<table>
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<tr>
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Summary

Analysis of the responses to the questions based on the wisdom criteria can be viewed as having two general characteristics:

1. A range of degrees of wisdom in expertness, from the lowest awarded score, one, to the highest awarded, seven, with mean scores on the five criteria extending from 4.2 to 5.4.

2. Wide differences in teachers' opinions and convictions according to their statements about the curriculum, the way they teach, the variety of contexts that affect what happens in the classroom, their relationships with other people in the course of their work, and their readiness to accept and deal with the variety of people and situations they encounter.

Further attention to these findings is given in the section that follows.

THE WISDOM IN TEACHER EXPERTNESS EXAMINED

The protocols were analyzed to see what wisdom, according to Baltes criteria, could be found in teachers' responses to five questions. This analysis was reported in the first section of the chapter. A further examination of the protocols is reported in this section. The protocols were scanned to see if there was a relationship between the responses to one question and the responses to other questions. Selected biographical and situational factors were also investigated to see if there was a relationship between these factors and evidence of the wisdom criteria found in the protocols. Finally, the findings
were explored in conjunction with the findings presented in the previous chapter which reported teachers’ statements about expertness and its attainment.

**Where Wisdom Lies: The Ratings**

Comparisons were made of the scores that the responses to each of the questions yielded first, with regard to the individual protocols and second, with regard to each of the criteria. The emphasis in this discussion is upon wisdom as a body or system of knowledge and its application rather than upon individuals who might be considered wise persons. This emphasis is congruent with Baltes’ (1990) conceptual emphasis in his study of wisdom.

*Scores on the protocols.* Baltes and his associates (in press) have stated that “an expert-like answer indicative of wisdom would reflect solid evidence for the entire family of criteria” (p. 11). If we consider scores of five, six, or seven to be “solid evidence”, then six protocols yielded this evidence for the entire family of criteria and three protocols did not yield this solid evidence on any criterion (see Appendix E). No protocol yielded a particular score on all of the criteria and only four yielded the same score on four of them. The three lowest scores were never yielded more than twice on any protocol (see Table 6.6). The total scores that the protocols yielded ranged from fourteen to thirty-three, with an average total score of 23.9 (see Appendix E).

*Scores on the criteria.* Mean scores for each of the wisdom criteria were reported in the first part of this chapter. Set beside one another (Table 6.7) these mean scores show that indications of wisdom in teacher expertness are more evident in factual knowledge, procedural knowledge, and uncertainty than in contextualism and relativism. The median for procedural knowledge is the only one for the five criteria above five points.
Table 6.6. Frequency of Scores Yielded for Each Criterion

<table>
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Table 6.7. Comparison of Scores Yielded by Responses on Each Criterion

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<th>MEDIAN</th>
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A comparison of the scores was also made by computing the frequency of the scores for each rating, one to seven, for each of the wisdom criteria (see Table 6.8). It can be seen that the scores on procedural knowledge varied least.

The next task undertaken was to ascertain whether or not high scores on one criterion were found in the same protocols as high scores on any of the other criteria. Table 6.9 reveals that high scores on factual knowledge, procedural knowledge, and uncertainty were most often found together.
Table 6.8. Frequency of Ratings Yielded by Responses

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<td>Relativism</td>
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</table>

Table 6.9. Responses Yielding Scores of Five, Six, or Seven on One Criterion also Yielding Scores of Five, Six, or Seven on Another Criterion

<table>
<thead>
<tr>
<th>CRITERION</th>
<th>Factual knowledge</th>
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</table>

The data were further examined to determine whether or not the higher scores that the protocols had yielded on the wisdom criteria, that is, scores of five, six, or seven, could be related to the respondents' number of years of teaching practice or gender. Table 6.10 presents an account of the number of responses awarded scores of five to seven on each criterion when tabulated for each length-of-experience category and for gender. This
tabulation indicates that evidence of wisdom was found in the responses of teachers in each years-of-experience category and for both genders, a finding that is consistent with that of Baltes and his associates. These associations did not, however, yield chi square values which suggest a significant difference.

Table 6.10. Responses Yielding Scores of 5, 6, or 7 on Wisdom Criteria in Relation to Biographical Factors

<table>
<thead>
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<tr>
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</tbody>
</table>

The situational factors that have been considered in this study are the type of school organization (junior, senior, and junior/senior secondary) and the subject area taught. Table 6.11 presents the findings about the evidence of wisdom in the protocols at a rating of five to seven points, in relation to these situational factors. Once again, these associations did not yield chi square values that would suggest a significant difference.

Another comparison was made with regard to the scores which the protocols yielded and the biographical and situational factors considered in the study. The total scores on all five criteria for each protocol were calculated and the outlying total scores, the highest and the lowest ones, were identified as the ones which lay one standard deviation above or below the mean (see Appendix E). In this manner, seven protocols were calculated to have yielded high scores and eight protocols to have yielded low scores. Table 6.12 displays the comparison between these high and low scores and the
biographical and situational factors. Once again, the investigation did not yield significant differences according to chi square calculations.

**Table 6.11. Responses Which Yielded High Scores on Wisdom Criteria in Relation to Situational Factors**

<table>
<thead>
<tr>
<th>CRITERION</th>
<th>TYPE OF SCHOOL</th>
<th>SUBJECT AREA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>J</td>
<td>S</td>
</tr>
<tr>
<td>Factual knowledge</td>
<td>N=22</td>
<td>8</td>
</tr>
<tr>
<td>Procedural knowledge</td>
<td>N=28</td>
<td>11</td>
</tr>
<tr>
<td>Contextualism</td>
<td>N=14</td>
<td>4</td>
</tr>
<tr>
<td>Relativism</td>
<td>N=15</td>
<td>6</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>N=22</td>
<td>10</td>
</tr>
</tbody>
</table>

**Table 6.12. Responses Yielding Total Scores on Wisdom Criteria ±1 S.D. in Relation to Biographical and Situational Factors**

<table>
<thead>
<tr>
<th>HIGH AND LOW SCORES</th>
<th>YEARS OF EXPERIENCE</th>
<th>GENDER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-10</td>
<td>11-20</td>
</tr>
<tr>
<td></td>
<td>N=9</td>
<td>N=21</td>
</tr>
<tr>
<td>Mean + 1 S.D.</td>
<td>N=7</td>
<td>3</td>
</tr>
<tr>
<td>Mean - 1 S.D.</td>
<td>N=8</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE OF SCHOOL</th>
<th>SUBJECT AREA</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>S</td>
</tr>
<tr>
<td>N=16</td>
<td>N=13</td>
</tr>
<tr>
<td>Mean + 1 S.D.</td>
<td>N=7</td>
</tr>
<tr>
<td>Mean - 1 S.D.</td>
<td>N=8</td>
</tr>
</tbody>
</table>
Summary. In this exploration of the findings, six protocols yielded what might be designated solid evidence of wisdom on all of the criteria, that is, scores of five, six, or seven, and three protocols did not yield this evidence on any of the criteria. Evidence of the existence of Baltes' criteria of wisdom applied to the domain of teaching was found to a greater extent in factual knowledge, procedural knowledge, and uncertainty than in contextualism and relativism. Investigation of these scores with regard to certain biographical and situational factors did not yield significant differences according to chi square calculations.

A second exploration was undertaken in which the findings about wisdom were investigated to see how they related to the elements of expertness and its attainment reported in Chapter 5.

Wisdom and Expertness
The exploration of teacher expertness and its attainment presented in Chapter 5 indicated that teachers often discussed certain elements of expertness in conjunction with certain other elements. In particular, teachers tended to discuss the elements personal attributes, responding to students, and other people, in conjunction with one another. Following the investigation of the wisdom in teacher expertness, the question arose: How did statements about elements of expertness and its attainment correspond to high scores on Baltes' criteria of wisdom? Table 6.13 displays this correspondence.

Of the twenty-two respondents who scored five, six, or seven on the criterion factual knowledge, nineteen or eighty-six percent discussed personal attributes as part of teacher expertness and its attainment. Further investigation of Table 6.13 reveals that whenever the wisdom criteria were found to the extent of yielding five to seven points, the three factors of expertness and its attainment that were mentioned by most of the subjects were personal attributes, responding to students, and other people. If, however, the low scores, one to four, are investigated in a similar way (Table 6.14), once again personal attributes are the element most often mentioned.
Table 6.13. High Scores of 5, 6, or 7 on Each of Five Wisdom Criteria Matched with Subjects' Mention of Elements of Expertness

<table>
<thead>
<tr>
<th>CRITERION</th>
<th>NUMBER OF PROTOCOLS AT SCORE 5, 6, OR 7 WHICH ALSO MENTION:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Personal attributes</td>
</tr>
<tr>
<td>Factual knowledge</td>
<td>N=22</td>
</tr>
<tr>
<td>Procedural knowledge</td>
<td>N=28</td>
</tr>
<tr>
<td>Contextualism</td>
<td>N=14</td>
</tr>
<tr>
<td>Relativism</td>
<td>N=15</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>N=22</td>
</tr>
</tbody>
</table>

Table 6.14. Low Scores of 1 to 4 on Each of Five Wisdom Criteria Matched with Subjects' Mention of Elements of Expertness

<table>
<thead>
<tr>
<th>CRITERION</th>
<th>NUMBER OF PROTOCOLS AT SCORE 1 TO 4 WHICH ALSO MENTION:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Personal attributes</td>
</tr>
<tr>
<td>Factual knowledge</td>
<td>N=18</td>
</tr>
<tr>
<td>Procedural knowledge</td>
<td>N=12</td>
</tr>
<tr>
<td>Contextualism</td>
<td>N=26</td>
</tr>
<tr>
<td>Relativism</td>
<td>N=25</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>N=18</td>
</tr>
</tbody>
</table>
Knowledge of subject area is mentioned by a larger percentage of teachers in this group (72%) than the group with the higher scores (50%) and responding to students is mentioned less often (67% as compared to 77%). Other people are still reported by most teachers as a means of attaining expertness. For the most part, then, mention of certain elements of teacher expertness were similar, whether or not high scores were yielded by the protocols with regard to the wisdom criteria.

A second comparison was made of differences between protocols yielding high and low scores, using total scores on all of the criteria and selecting as high and low scores those that were plus or minus one standard deviation from the mean (see Table 6.15). This comparison revealed a similar lack of difference between the two groups except for mention of the elements, responding to students and knowledge of subject area. When chi square calculations were made, the group of protocols with high scores mentioned responding to students significantly more often than did the group with the low scores (see Appendix F), but, although the group of protocols with low scores mentioned knowledge of subject area more often than did those with high scores, the chi square calculations did not indicate a significant difference with regard to mention of this element.

<table>
<thead>
<tr>
<th>ELEMENTS</th>
<th>MEAN +1 S.D.</th>
<th>MEAN -1 S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=7</td>
<td>N=8</td>
<td></td>
</tr>
<tr>
<td>Personal attributes</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Responding to students</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Knowledge of subject area</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Other people</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Workshops</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Reading</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Experience</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
This chapter has reported the findings about wisdom in teacher expertness and about this wisdom in conjunction with the subjects' descriptions of teacher expertness and its attainment. A discussion of these findings follows.

WISDOM IN TEACHER EXPERTNESS DISCUSSED

In this section, the findings about wisdom in teacher expertness are discussed. These findings are (1) that the evidence of the existence of Baltes' criteria of wisdom applied to the domain of teaching is found most strongly in factual knowledge, procedural knowledge, and uncertainty, and (2) that, where there is a strong evidence of wisdom in teacher expertness, the elements of expertness which tended to be discussed were personal attributes, responding to students, and other people.

Wisdom in Teacher Expertness

A review of Sternberg's (1990) collection of essays on wisdom reveals that, in almost every instance, the authors include in their definitions or descriptions of wisdom the element of cognition: wisdom as a holistic cognitive process (Csikszentmihalyi & Rathunde), as objective, logical forms of processing (Labouvie-Vief), as multidimensional, prototypically organized competency descriptors (Chandler & Holliday), in a metacognitive style (Sternberg), as integration of cognition with affect (Orwoll & Perlmutter), as awareness of the fallibility of knowing (Meacham), and as problem-finding ability, a fundamental cognitive process (Arlin). This cognitive component of wisdom in richness of factual knowledge and of procedural knowledge is, according to Baltes and Smith (1990), generally accepted in descriptions of expertness. It may be concluded that the presence of factual knowledge and procedural knowledge are necessary but not sufficient evidence of wisdom. It is not surprising, then, that where there was strong evidence of the wisdom criteria in discussions with expert teachers, it was most often apprehended in procedural
knowledge and almost as often in factual knowledge. Finding evidence of the other criteria, contextualism, relativism, and uncertainty, may be particularly important to the discernment of wisdom, however, because of the greater commonality of the cognitive aspects.

The protocols also yielded notable evidence of the criterion uncertainty in teacher expertness. Baltes (in press) explains that this criterion, as its name indicates, is present when there is an awareness of the unpredictable nature of situations and where there is also confidence that these unpredictable situations can be managed. Sternberg (1990) lists among the traits of wise persons the attribute of understanding ambiguity and obstacles; Meacham (1990) sees wisdom in the ability to balance knowing and doubting; and Kitchener and Brenner (1990) discuss the wisdom in solving ill-defined problems and making judgements. Teachers in this study often spoke of flexibility as a necessary and vital strength for teachers, not only for success in their response to students, but for satisfaction in their own development as experts. It should also be noted here that expressions of concern for individual differences pervaded the protocols and that these expressions of concern also gave evidence of wisdom. Arlin (1990) states that:

Although problem finding and wisdom share many features in common, their greatest commonality may be in the role of the question that is found under conditions of uncertainty and the relativity of the solutions that are offered in the face of these ill-defined problem situations. (p. 241)

Because of the differences among individual students whose learning problems are ill-defined, teachers are continually faced with conditions of uncertainty. The expert teacher's belief in the existence of solutions to the learning problems of students and that teacher's search for these solutions may provide evidence of one facet of wisdom.

Contextualism and relativism were the least evident criteria in the protocols. In his description of contextualism, Baltes (1990) includes awareness of multiple contexts and how they are interrelated, awareness of the tension and conflict which can be involved in these multiple contexts, and changes in the relative salience of the contexts (p. 101). Labouvie-Vief (1990), discussing wisdom as integrated thought, states:
What makes the artist, the poet, or the scientist wise is not expert technical knowledge in their respective domains but rather knowledge of issues that are part of the human condition, more generally. Wisdom consists, so to say, in one’s ability to see through and beyond individual uniqueness and specialization into those structures that relate us in our common humanity.

Subjects in this study did not, for the most part, discuss issues as “part of the human condition”, but tended to discuss teaching from a point of view bounded by the classroom and the school. Some did refer to the students’ families and the community, but most did not. School district personnel beyond the school itself were hardly mentioned at all. For the most part, the discussions of teacher expertness were not only narrowly bounded in the environmental dimension, but also in time. Comments about professional development activities, for instance, were largely centred on co-operative learning, a teaching technique currently being promoted; the effective-teaching/school-improvement movements of the previous few years were seldom mentioned.

The fourth criterion, relativism, is meant to include the ability to be objective in considering problems, to consider alternative solutions to these problems, and at the same time to display empathy for people in diverse situations (Baltes, 1990, p. 102). Kramer (1990) contends that “a high degree of affective and affective-cognitive integration is necessary in order to develop, so that these ways of thinking can be enacted in one’s life and one’s relationships with others without simply imposing one’s own needs onto others” (p. 296).

In this study there was indeed evidence of empathic understanding in teacher expertness. A dominant theme in the protocols, for instance, was the concern of teachers for alienated students, a theme that is documented in the next chapter of this thesis. What seemed to be missing with regard to the criterion, relativism, was the ability of teachers to consider alternative, long-term solutions to the larger, on-going problems implicit in the education context. These long-term, larger problems are not to be equated with the ill-defined problems considered during the discussion of uncertainty, which were soluble through the use of the factual and procedural knowledge of the expert. But with regard to
the ills of the education system, teachers did not appear to assume responsibility for them, nor did they tend to offer solutions.

It may be speculated that the exclusion of teachers of the arts from the respondent group (see p. 45), has precluded the collection of data from those people who might particularly have had the wisdom of contextualism and relativism in their expertness. It may be that teachers of "academic" subjects, whose instruction is centred upon verbal modes rather than visual-spatial, holistic modes of learning, would have displayed wisdom in factual and procedural knowledge more than in contextualism and relativism, but that this would not have been the result if teachers of "the arts" had been interviewed. Although one must be cautious about assuming that teachers of the arts are endowed with particular creativity, the possibility of such a relationship exists. In this regard, Sternberg’s (1985) study, which interrelated people’s implicit beliefs about intelligence, creativity, and wisdom, is of interest. Sternberg found that all three of these constructs were related, but that creativity was least related of all to either of the other two. Sternberg (1990) does suggest that "creative people do not want to be locked into conventional ways of doing things....will want to go beyond where things are, to stretch what is known and even how people think about what is known" (p. 155). Bereiter (1986) has speculated that one way to become an expert is to become knowledgeable about facts and procedures and proficient in their application, a practice which may be detrimental to creative performance and to the development of some aspects of wisdom which may result from the transcendence of rule-based performance. It is at least possible that a certain richness and breadth of problem definition and solution (Dixon & Baltes, 1986) that was found to be lacking in this subject group might have been alleviated if teachers of the arts had been included.
The Wisdom Criteria and Teachers' Descriptions of Expertness and Its Attainment

The finding under discussion is that, when the protocols yielded high scores on the wisdom criteria, teacher expertness was attributed by most of the respondents to certain elements of expertness and to particular ways of attaining this expertness.

Pascual-Leone (1990) has found that one overall conclusion about wisdom is that it involves “not just cognition but affect and personality as a whole” (p. 272). Other research on cognitive development and expertness has indicated that knowledge systems and performance styles are formulated by different kinds of experience and different reflective abilities and opportunities (Rybash, 1986; Dixon & Baltes, 1986) and that wisdom has been seen to “encapsulate the general direction of progressive personality change during adulthood” (Baltes & Smith, 1990, p. 88). Wisdom has also been seen to be an integration of personality and cognition (Orwoll & Perlmutter, 1990). The frequent mention in the present study of personality traits as part of teacher expertness is congruent with these former research findings. When the scores that the protocols yielded with regard to the wisdom criteria were examined, however, although high scores on the wisdom criteria were related to mention of personal attributes as part of teacher expertness, so, too, were low scores related to mention of personal attributes. An association was not found, therefore, between evidence of wisdom in the protocols and mention of personal attributes as an element of teaching expertness.

Responding to students was mentioned more often in the protocols that yielded high scores on the criteria than the protocols that yielded low scores. Mention of the element, knowledge of subject area, however, was found to be more frequent in the low-scoring protocols than in the high-scoring ones.

Teachers in this study have credited other people, usually other teachers, with inspiring them and providing them with ideas resulting in positive change in their performance. This finding, too, has its counterpart in the literature.
If one asks, however, under what conditions uncertainties, doubts, and questions are most likely to arise, and thus to prepare the way for further intellectual development, the answer must be that they arise in social transactions, in dialogue which provides the means for the construction of new knowledge. (Meacham, 1983, p. 21)

Meacham (1990) also alludes to a “wisdom atmosphere” where there is an invaluable supportive relationship between people within which people can be open about their self-doubts and can accept advice (p. 208). This is the atmosphere that the teachers in the current study seek and appreciate. For the most part, where the wisdom criteria were most in evidence in the protocols, the importance of other people as a means of attaining expertness was most often mentioned (see Tables 6.13 and 6.14).

This chapter, The Wisdom in Teacher Expertness, and the previous one, Teacher Expertness and Its Attainment, have reported findings resulting respectively from the content analysis designed by the researcher and the framework offered by Baltes et al (in press). Some additional findings resulted from an overview of the protocols and, therefore, a third and final report of findings is presented in the following chapter, Themes in Teacher-Talk.
CHAPTER 7

THEMES IN TEACHER-TALK

A theme, as used in this thesis, is a recurring subject. It consists of short, informal comments, concentrated upon an idea or a feature. Like a musical theme, it is not recognized because of the number of times it appears, but rather because of the intensity or eloquence of its expression.

The themes that were identified in this study were not the direct statements that teachers made about the nature of expertness and its attainment nor were they the immediate responses that teachers provided to the questions that were meant to elicit evidence of the wisdom of the expert teacher. Rather, they were recurring related comments evoked by discussions of teaching practice, comments that emerged as expert teachers were encouraged to talk about their craft. Although these comments could not be classified either as statements about teacher expertness and its attainment or as responses that yielded evidence of the wisdom criteria, they provided insight about the reflections of expert teachers.

THEMES FOUND IN TEACHER-TALK

Five themes emerged: (1) concern for the alienated student, (2) a related concern for the alienated teacher, (3) the excitement inherent in the practice of teaching, (4) the cooperative learning approach to classroom teaching, and (5) some anticipated topics that were conspicuous because of their absence.
The Alienated Student

A dominant motif in the teacher interviews was concern for students who are not well-served by the secondary school system. Teachers often depicted students as victims of a bureaucratic system and as subjects of unresponsive authoritarians. This motif was perceived in comments teachers made about the education system in general and about some classroom situations in particular.

The education system. Teachers contended that much of the content of the curriculum is irrelevant for students. One of the results of this curriculum irrelevance was seen to be student alienation. A social studies teacher put the matter into historical perspective and identified a need for a review of educational philosophy:

I think it's the intrinsic values that we should be using to promote education and to me that seems to be quite often lost and I think it's probably because, during the eighties, education seemed to have been infected by the business mentality of things, cost efficiency and all of this and I know that a lot of the work that I read on education in the early eighties smacked so much of the bottom line of business which I find really offensive because I don't think that we have a product like business has. I think business has an agenda and that's fine. That's good for business, but I think education has a totally different agenda and I really object to the mixing of the two. (25:7)

Teachers alluded to the need to build flexibility into the school system so that programs would have relevance for students:

I think we've reached a point where there should be an alternative for a lot of kids. A lot of them are not meant to be sitting in desks, getting into the academics five hours a day. I think we're assuming a little bit too much by making them do that at the junior high school level.... You know, we bring them into school and essentially they all take the same subjects and I think maybe there should be alternatives for some kids. (10:6)

Another person said, "My feeling is that the kids do not feel involved enough in their own education" (27:5).

Government final exams were frequently mentioned as detrimental to teaching and learning:
If we could get rid of the final exams! We lose so many kids because we have to go so fast, or we think we have to go so fast and they haven’t mastered anything or they haven’t got a sense of what’s going on and it’s all crazy. (7:11)

It’s a foot race and you’re teaching it, but you know that there aren’t that many students who are staying with you the whole time. And even the best aren’t getting the enrichment they could have if you had more time to do it. (37:5)

A solution was offered by a science teacher who said:

At the junior level, we should be introducing students to as many fields as we possibly can. Get them excited, get them involved, and get them out of here. Let them decide where they’re going to go. Are they going to go to university? One or two actually do head that way. But only one or two. I would love to see us have trade schools, business education, that type of thing built up in B. C. at the grade nine or ten level so students could enter into apprenticeships. That’s where they want to go. (23:14)

These and other similar comments depicted students as being vulnerable to a bureaucratic education system which impedes their chance to learn and at the same time fails to meet their needs. Further alienation of students was seen to be caused by teachers’ attitudes and practices within classrooms:

In 1989 we’ve got a better education for our teachers in teacher training, we’ve got more equipment and better facilities and smaller classes [than we ever had] and our kids are failing at a greater rate. Now, our kids aren’t failing; we are failing. (7:14)

*The classroom.* The comment was made that pupils are keen in the elementary school and when they enter grade eight, but by grade ten they have lost that enjoyment of school (31:5). Some explanations were given:

I’m convinced that part of the reason that students don’t learn, especially today with the nature of the way in which information is usually given to them, is that they become very bored. And when they’re bored, they just don’t learn. (4:2)

The importance of being aware of this boredom was reported to be vital to classroom success:

I can’t stand seeing my kids when they have that veil of boredom covering their eyes and I guess with all the new techniques and new strategies, that doesn’t happen very often any more or it doesn’t happen for very long anyway. (7:10)

But overcoming the boredom is no easy task and for some teachers, an impossible task:
...the real problem, if you look at the kid’s point of view, is that he has to somehow get interested in this stuff and a lot of times there’s nothing to get him interested in it. (22:8)

One teacher spoke about the need to appreciate “the little lights coming on and frowns going on the foreheads as they are working through something” (23:3) and another said that what matters is “the little things”:

Knowing when your class has had too much information and they can’t handle it. Knowing when the curriculum says you should be here and you should be testing and such and such, but they don’t understand. And you say, “O. K. We’ll go back and we’ll do it another way and to hell with the curriculum”. (3:15)

The need to establish the right classroom atmosphere at the outset was the focus of one department head. She spoke about the discussions she has with students at the outset. The results of these discussions are far-reaching:

And everybody feels closer to one another, more confident and more trusting that I’m not going to do something to them that makes them feel crummy or inferior or put down or scared or any of those things. But I think that in lots of classes, that lack of personal stuff contributes to the feeling of alienation and the lack of desire to come to school. (7:8)

The “lack of personal stuff” was discussed by a mathematics teacher, who said:

Some days they come to school and they don’t want to learn. There must be a reason.... And I will say, “Well, look, you don’t want to learn today, you can just sit there quietly and then come and talk to me about it later”... Most of the classroom teachers won’t have that kind of sense and they just come in and say, “O.K. I’m here and I’m going to teach you, you come and learn and you better hear this stuff”. (38:9)

Another teacher expressed the conviction that:

Without molly-coddling the kids, we have to make them feel more like this is theirs. This is their place. Sure, I set some rules and guide-lines and I sort of organize affairs, but I try very hard to make them feel like this is for them. (35:9)

The need to take time for students was underscored by a teacher who vividly recollected an encounter that he had experienced during his own high school life:

R. F. was a teacher in my junior high school. Never taught me a course. Never had him as a teacher. But one day after school, I was walking down the hall and I looked in his room and he was there and I said “Hi” and he said, “Hi, come on in”. So I just walked in and we sat down for about two hours, we just talked. I was in grade nine and I will remember that to the day I die. That was the most significant experience I’ve ever had in my entire life with a teacher, and yet he never taught me a thing. Except that I was important. (4:13)
In summary, teachers described the alienation of students as stemming first, from the education system because of its philosophy and in particular, the imposition of final exams, and second, from classroom practice which results in boredom, lack of comprehension and lack of mutual respect.

With regard to government exams, Crawford Kilian (March, 1989), reflecting the views of members of the British Columbia Teachers' Federation, stated that:

Test-score comparisons provide quantifiable assessments, but not necessarily of genuine learning...Far from being an objective pedagogic tool, standardized testing becomes only a demagogic gimmick, a way of enforcing political whims on trustees and teachers.

Evidence abounds that students in secondary schools do feel alienated (Cusick, 1973; Glasser, 1986; Goodlad, 1984; Lightfoot, 1983). The dropout rate in B.C. schools is approximately thirty percent (Royal Commission, 1988). Teachers in the present study, concerned about the alienation of students, assign blame for what is happening both to those responsible for the system as a whole and to teachers within their own ranks. One teacher said,

The idea that we have a real chance to make this place a better place to work and to be in is really important. If teachers set things up right and handle things right, it can be a great place to be and a place to grow. (16:17)

For the most part, schools were not, however, depicted as great places to be and to grow, either for students or for teachers.

The Alienated Teacher

Teachers made recurring references to certain impediments to the improvement of their teaching. An examination of these impediments revealed a theme in some ways analogous to that of the alienated student: teachers often feel unsupported and unappreciated. It was possible to cluster these feelings into two sub-themes: those which describe the isolation of teachers and those which describe public attitudes toward teachers and schools.
Isolation. One teacher said, "I think probably the greatest pitfall in the whole profession is the sense of isolation" (19:9) and another commented:

I feel that we're so isolated, that teachers are in a classroom and besides those infrequent professional days, we don't really get an opportunity to meet with other teachers on a professional level to actually discuss and plan things and so on. (21:6)

Some of the responsibility for teacher isolation was attributed to administrators:

Teachers are too often made to feel that they're standing alone, fighting their own battles, and they're not encouraged a great deal by the structure above them, and in fact, it often seems to me, obstacles seem to be put in their way to accomplish education. I think the distance between the classroom and the bureaucracy is too great. (35:8)

Several teachers considered the ways in which administrators were in a position to encourage teachers, but sometimes did not do so.

Often the administration, the higher ups, they are not really aware of what teachers are doing. Administrators and some others would go a long way if they would do some of the things we are to do with children—encourage them, recognize them when they do something extra, and there's not enough of that around. I think even though they get a salary, teachers need that. (20:15)

Quite often teachers feel burned out because they've done so much and sometimes they don't hear the thanks, the warm fuzzies. Quite often a letter in your file or, "Thanks, you did a great job on that" raises the spirits for the teacher again. Administration can be very helpful. (1:14)

One person mused, "Getting an administrator out of an office is a pretty important thing" (23:17). He went on:

I think administrators can hide in an office and nobody can run in this business without a little praise. I think to have an administrator just walk through your room. "Gee, how are you doing", open a couple of students' books, "Gee, you're doing something exciting"! That will keep a teacher thrilled for two weeks. (23:18)

"The educational environment is one essentially of non-reward", said one department head with more than twenty years experience. He explained:

It is essentially one of "we are all teachers and we're all equal and don't say you're any better than anybody else because you aren't and we're not going to pay the master teacher more money because that would mean the other people feel that they're not masters and that's not—". And you know we go through all that kind of thing. And I understand that, but I think the benefits may outweigh the negative parts to that, if we could recognize those people that are really good teachers more than we do. I always remember thinking about principals that I've had who were uncomfortable in even going to somebody and saying, "Great job, wonderful job, well done"! (39:19)
Another person, commenting on his need for positive feedback, found it possible to excuse administrators who did not offer this encouragement:

We are going to a new school next year and there will be eighty or ninety teachers there—God knows how many. There is no way that the administration can keep track of all the extra things that teachers do. It’s going to be a factory. (20:17)

One department head took matters into his own hands:

I wrote them letters and had the principal write them letters on what a fine job they had done over the years and thank you very much for your contribution. (3:10)

A bleak picture was drawn by one teacher who reported details of the supervision he had experienced in more than twenty years of teaching. After a description of those who had visited his classroom, he said:

And that’s six adults in my classroom, other than a few student teachers, and not one of them stayed for an hour. Five hours of people looking at you in over twenty years is an awful lot of time without any kind of comment on how I’m doing or a suggestion or a pat on the back. It’s just not happening. (18:10)

There was some mention of peer supervision, but some teachers seemed skeptical. One said, “Teachers don’t want to [visit one another] at either end of the scale: they don’t want people to come into their room and they don’t want to sit in other people’s rooms for some reason” (39:12).

The isolation of teachers was mentioned frequently, then, as an impediment to their development as experts. Problems resulting from their public image were also frequently mentioned.

Public attitude. Teachers sometimes depicted themselves as victims of a hostile public:

The fact that so many people in the community question the capabilities of teachers within the school, I find quite demoralizing. I think that the level of training of teachers is very much greater than it was years ago, when I started anyway, and I think the amount of recognition for the skill, however, has decreased. (32:8)

We have to try to convince employers that we’re valuable commodities also and I think that really involves us re-awakening the community to the service that we provide, because sometimes that is lost. (19:19)
A solution may be implicit in this statement:

And I think what makes a good teacher is one that feels comfortable and confident and has a sense of self-esteem and efficacy. And if you lose your sense of efficacy and don't have self-esteem, then what have you got. (30:13)

A sense of self-esteem and efficacy, according to one teacher, could often be perceived in new teachers:

What I am amazed at is that new people to the profession have quite a sense of efficacy and they're idealists. What happens is that after years and years and years, and many times not making a difference, not making one bit of difference, and being blamed for it by a parent, the administration, or a counsellor, blamed for, or feel guilty for part of the demise of students, that's a difficult thing to cope with. (30:14)

In summary, teachers depicted themselves as alienated when they discussed their isolation as a result of the closed classroom, their lack of administrative support, and a reluctance of teachers to respond to peer supervision. They also felt alienated because of a public attitude which denies them respect for the service they provide and threatens their sense of self-esteem.

The isolation of teachers within their classrooms has been described by researchers for a number of years (Cusick, 1973; Lortie, 1975; Glickman, 1985); that it is a recurring motif in this study might have been anticipated. What is conspicuous here is not just teachers' comments about their feeling of isolation, but their comments about lack of support or evidence of appreciation from school administrators whom they hold responsible for much of their isolation. Glickman (1985) has denounced the neglect of teachers by administrators:

To leave classroom teachers alone and unobserved in their classrooms, without professional consultation and without school resources tailored to their unique needs, is a statement (intended or not) that teaching is unimportant. The message to teachers is that what is important is keeping your class quiet, your doors shut, and your problems to yourself. (p. 273)

Teachers in the present study did not denounce the lack of instructional help from administrators, but rather the lack of recognition of their significance in the school system.
Teachers have described the difficulties they have in sustaining their self-esteem despite an often negative public attitude. They have stated that the difficulties are due at least in part to changes in expectations of schools and teachers as a result of vast social and economic changes that have occurred in British Columbia over the past twenty years, changes that have made new demands upon schools and teachers (Report of the Royal Commission on Education, 1988). These changes include an explosion of knowledge, new communication and information processing technologies, an increasing variety of ethnic groups within the population, and changes in family structures and in the role of women in society.

The alienation themes embraced most of the feelings of dejection that teachers expressed in the interviews. These motifs were somewhat alleviated by statements about the excitement that was experienced in schools. Indeed, excitement was identified as the third theme.

**Excitement**

Teachers used the word excitement to describe feelings about successful student learning, about the subject they were teaching, about success with a new teaching technique, and about "the excitement of the kids" (3:15). One teacher, for instance, talked about the success that excitement fosters: "You come in, you’re excited about what you’re teaching, you’re excited about kids, and...you can make just about anything work" (35:3). Another person talked about the excitement that results from success: "Experts have to have a desire to make a difference for the students that is exciting...." (9:15).

Success for teachers was seen to be exciting, too:

> I think getting better takes energy; it takes effort; it takes a lot of time; it has its rewards. I think the rewards are in the excitement of going somewhere. (23:16)

The excitement that teachers spoke about was sometimes equated with fun as it was in this comment:
If I can’t have some fun, and I’m not silly enough to think that every time I come into this classroom I have to be delirious with excitement, but there has to be some fun in this somewhere. (35:15)

A teacher who had been working in the same school for more than ten years, talked about his continuing excitement in that situation. He said:

I still have that spark, still the interest and the energy. So far! I just love it here. In the junior high, the kids can be frustrating, but they’re dynamic. It’s a dynamic situation. And that’s what I need. (33:4)

The importance of excitement was also emphasized by a person who said, “If you can’t get them excited about your subject matter, I don’t think you should be in it” (8:10).

Teachers said, then, that they were excited by the curriculum, the classroom situation, responding to students, and student success. The statement, “I think it’s an exciting time to be teaching right now” (8:4), was seen to represent a number of teachers’ feelings. This sense of excitement was sometimes cited as one of the essential ingredients of expertness and sometimes mentioned as an antidote to the demands of a difficult profession. Eisner (1990) was directing teachers’ excitement to students when he suggested that teaching students that learning is exciting and fun might be a primary educational goal.

**Cooperative Learning**

When teachers discussed changes to their teaching methods or techniques, they often spoke about their increasing attention to student involvement and to a student oriented classroom. These teachers talked about their initial teaching techniques which tended to be some variation of a lecture method and they said that their approach had changed from being teacher-centred to being student-centred. Some teachers mentioned their attention to hands-on activities for students with the teacher as facilitator and some mentioned student peer instruction. Most such discussions included a reference to *cooperative learning*. The cooperative learning approach is explained in part through the following quotation from two of its original proponents, David W. Johnson and Roger T. Johnson (1987).
Cooperative learning involves the structuring of lessons so that students work together to accomplish shared goals. Students are assigned to small groups and instructed to learn assigned material and to make sure that the other members of the group learn the assigned material. Thus, students seek outcomes that are beneficial to all those with whom they are cooperatively linked. Students discuss the material with each other, help one another understand it, and encourage each other to work hard. (p. 6)

Some teachers referred to workshops about cooperative learning that they had attended within the school district or beyond its boundaries. Some teachers said that "cooperative learning" had become "a buzz word", but none of those who mentioned the technique said that they disputed its merits.

It may not be surprising that cooperative learning was mentioned frequently as an accepted new teaching and learning technique. What does seem surprising is that the approaches to teaching that had been prevalent a few years before were hardly mentioned at all. The effective teaching and school improvement movements upon which many professional development activities had been centred in the early 1980s (Shulman, 1986) seemed to have faded out of sight.

**Conspicuous Omissions**

It had been anticipated that discussions of classroom management and supervision of instruction, frequently alluded to by laymen and experts, would be featured in the interviews. The lack of mention of these topics, or their cursory treatment, was noticeable. Their omission provokes comment.

*Classroom management.* Classroom management, discipline, or student misbehaviour were seldom discussed by the department heads who were interviewed. When the topic was mentioned, it was considered to be a concern of the beginning teacher, not the experienced or expert teacher. This comment provided some insight: "We can't really force the kids to do anything they don't want to do, so you've got to use different methods" (38:10). The different methods are reported in detail in Chapter 5 in the section...
"Responding to students", but the matter of general classroom management was hardly mentioned at all by the department heads.

The most obvious explanation for this conspicuous omission is that the subjects, experienced teachers with acknowledged expertness, had previously found ways to manage their classes and to deal with disruptive students so that these matters were not of concern to them. An English teacher in a senior secondary school explained:

Unfortunately, beginning teachers are so caught up with just maintaining control, teaching their lesson, finding where the video machine is, on and on and on, that they feel that they've been a success if they've just kept everybody in the room and got from page five to page eleven, and whew, out the door. And so you get so caught up in the mechanics of it that, well, now I'm past that and I can deal with the human beings more and I feel good about that. I wish I could go back and teach some of the classes that I taught when I was twenty-five. (39:9)

It would seem that, for the most part, the expert teachers who were interviewed for this study take the well-managed classroom for granted and are able to focus their attention on the outcomes of their teaching practice. This finding is in accord with Glickman's (1985) conviction:

Beginning teachers are concerned with their own survival.... With survival and security assured, teachers think less of their own needs and begin to address the tasks of teaching. They begin to think about altering or enriching the classroom schedule, the teaching materials, and their instructional methodology. (p. 60)

The fact that the interviewees did not mention either counsellors or assistant principals, the school personnel most often assigned responsibility for dealing with student misbehaviour, can be seen as an allied omission. What is not known as a result of this study is whether or not novice teachers or teachers with less expertness would have discussed classroom management or problems arising from student misbehaviour.

**Supervision of instruction.** When they discussed the development of their expertness, teachers did not mention the supervision of instruction by a principal or by central office personnel. There were, however, complaints that instructional leadership was not taking place. One teacher said,
I would like to see principals play a bigger role in making sure that the curriculum is being taught and that the evaluation is taking place. I'd like it, you know, if this message can be included in your [the researcher's] work. I find it very frustrating as a department head not having the support from the principal. (5:14)

Another teacher had a similar complaint:

There is no educational leadership because they're essentially managers. They don't come in and teach you how to teach, they don't come in and evaluate your teaching in terms of what you're doing and things that they think might be used to help to improve what you're doing. You never see them. (4:18)

Still another teacher said that he has never had an administrator, and he repeated "never", do the kinds of instructional leadership things that he was taught to do in his masters program in educational administration. (11:17)

It was also noted that, although teachers sometimes alluded to the Ministry of Education as having an influence on teaching and learning, and sometimes referred to the tasks of the school administration, they almost never mentioned central office staff, that is, supervisors, directors, or superintendents. One person within the curriculum and instruction support staff was mentioned several times as a source of ideas and of instructional help; otherwise, the central office staff did not appear to be present in the minds of teachers.

In secondary schools, where teachers are considered to be specialists in their fields, supervision of instruction and consultation about their teaching may not be viable. Supervision and consultation may be particularly unnecessary for experienced teachers with recognized expertness. Goodlad (1984) has asserted that this kind of help should not be expected from principals, especially in the secondary school:

It is naive and arrogant to assume that principals, who may or may not have been effective teachers, can acquire and maintain a higher level of teaching expertise than teachers engaged in teaching as a full-time occupation. The concept becomes particularly absurd at the secondary level, where presumably the principal...will have acquired teaching competence beyond that of the teachers of each of the diverse subjects. (p. 303)

Indeed, teachers in this study did not for the most part decry their lack of instructional assistance. What they did resent was the lack of appreciation and encouragement from administrators. Appreciation and encouragement may be seen to promote the factors that
Duke (1990) has listed as contributing to a capacity for teachers' professional growth: motivation, awareness, and imagination. In most cases, the administrators to whom the teachers in this study alluded were within their own schools.

THE THEMES ARE COMPARED WITH OTHER FACTORS

The numbers of teachers who mentioned each of the first four themes, alienation of students, alienation of teachers, excitement, and cooperative learning, were examined to see if certain biographical or situational factors were related to discussion of the themes. The number of teachers who mentioned elements of expertness and those whose responses to the questions about wisdom yielded scores of five, six, or seven were also compared with those who mentioned the themes.

Biographical and Situational Factors
The number of teachers who mentioned each theme in each years- of-experience, gender, type of school, and subject area classification was compared to the total number in each classification of the forty teachers interviewed (see Table 7.1). For instance, nine of the teachers interviewed had taught for ten years or less; five of these mentioned the theme, student alienation. When chi square calculations were made, none of the associations yielded a value which suggested a significant association between mention of any theme and any biographical or situational factors.

Elements of Expertness
When the numbers of teachers who mentioned the themes and also mentioned certain elements of expertness were compared with the numbers of teachers in the total group who mentioned the elements of expertness (see Table 7.2), once again none of the associations yielded a chi square value which suggested a significant difference.
Table 7.1. Biographical and Situation Factors in Relation to Four Themes

<table>
<thead>
<tr>
<th>FACTORS</th>
<th>ALIENATION OF STUDENTS</th>
<th>ALIENATION OF TEACHERS</th>
<th>EXCITEMENT</th>
<th>COOPERATIVE LEARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=40</td>
<td>N=17</td>
<td>N=16</td>
<td>N=12</td>
</tr>
<tr>
<td>Years of Experience</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-10</td>
<td>N=9</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>11-20</td>
<td>N=21</td>
<td>9</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>21-33</td>
<td>N=10</td>
<td>3</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>N=29</td>
<td>13</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Female</td>
<td>N=11</td>
<td>4</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Type of School</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td>N=16</td>
<td>5</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Senior</td>
<td>N=13</td>
<td>6</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Jr/Sr</td>
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<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Subject Area</td>
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<td></td>
</tr>
<tr>
<td>En</td>
<td>N=9</td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Ma</td>
<td>N=5</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PE</td>
<td>N=7</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Sc</td>
<td>N=10</td>
<td>4</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>SS</td>
<td>N=9</td>
<td>3</td>
<td>4</td>
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</table>

Table 7.2. Elements of Expertness in Relation to Four Themes

<table>
<thead>
<tr>
<th>ELEMENTS</th>
<th>ALIENATION OF STUDENTS</th>
<th>ALIENATION OF TEACHERS</th>
<th>EXCITEMENT</th>
<th>COOPERATIVE LEARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Attributes</td>
<td>N=33</td>
<td>14</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>Responding to Students</td>
<td>N=29</td>
<td>13</td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td>Knowledge of Subject</td>
<td>N=24</td>
<td>12</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Other People</td>
<td>N=25</td>
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<td>8</td>
<td>9</td>
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<tr>
<td>Workshops</td>
<td>N=17</td>
<td>11</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Reading</td>
<td>N=16</td>
<td>7</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Experience</td>
<td>N=20</td>
<td>11</td>
<td>9</td>
<td>4</td>
</tr>
</tbody>
</table>
The Wisdom Criteria

A third comparison was made. The results were examined to see whether or not mention of the themes was found particularly in those protocols which had yielded scores of five, six, or seven on the responses to the questions ascribed to the wisdom criteria. Once again, no significant association was found when chi square values were calculated.

Table 7.3. High Scores (5, 6, or 7) on Wisdom Criteria in Relation to Four Themes

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>ALIENATION OF STUDENTS</th>
<th>COOPERATIVE LEARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>N=17</td>
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<tr>
<td>Factual Knowledge</td>
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<tr>
<td>Procedural Knowledge</td>
<td>N=28</td>
<td>13</td>
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<tr>
<td>Contextualism</td>
<td>N=14</td>
<td>7</td>
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<tr>
<td>Relativism</td>
<td>N=15</td>
<td>10</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>N=22</td>
<td>11</td>
</tr>
</tbody>
</table>

Somewhat different results were found, however, when total scores on the five criteria were calculated and high and low groups were identified by considering the scores one standard deviation above and below the mean (see Table 7.4).

Table 7.4. Total Scores on Five Wisdom Criteria ±1 S.D. in Relation to Four Themes

<table>
<thead>
<tr>
<th>ALIENATION OF STUDENTS</th>
<th>COOPERATIVE LEARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=7</td>
<td>N=17</td>
</tr>
<tr>
<td>Mean +1 S.D.</td>
<td>5</td>
</tr>
<tr>
<td>Mean -1 S.D.</td>
<td>2</td>
</tr>
</tbody>
</table>
A significant difference was found with regard to mention of the themes, alienation of students and excitement: in the protocols with the high scores these two themes were found more frequently than in the protocols with the low scores (see Appendix F).

In summary, the comparison of the themes with biographical and situational factors and with the elements of expertness did not shown any significant association. When strong evidence of the wisdom criteria was found in the protocols, the themes, alienation of students and excitement, were mentioned more frequently than when this evidence was not apparent. The pursuit of these possible associations was considered a necessary part of the study; the importance of the themes, however, lay in what they revealed about the perceptions of expert teachers and in how they complemented the findings in chapters 5 and 6, all of which led to the salient findings which are presented in Chapter 8.
CHAPTER 8
THE SALIENT FINDINGS

The findings from this study have been reported in three chapters: Chapter 5 centred upon teachers' descriptions of their teaching practice, Chapter 6 reported teachers' responses to questions related to certain wisdom criteria, and Chapter 7 identified some themes that pervaded the teachers' discussions of their practice. The present chapter merges the findings from these three chapters in order to provide an assimilation of the findings about the nature of teacher expertness and its attainment.

The salient findings have been clustered in three groups. The first group includes those findings which accrued from the explicit statements of teachers when they discussed their practice and when they responded to the questions related to the wisdom criteria. The second group of findings are those which were implicit in these discussions and responses. Although the first group of findings may be called salient in as much as they were conspicuously present in the data, these findings were perhaps predictable and it is not likely that they will be deemed remarkable or striking. It is the second group of findings, the perceptions of what was less clearly expressed or of what was implied, that may be considered salient, not because they were conspicuous, but because their discovery may be important in furthering the understanding of teacher expertness. The third group of salient findings that are reported were perceived as a result of the inquiry that was made about the wisdom inherent in teacher expertness.

Findings That Were Explicit in Teacher-Talk
When teachers were asked to describe expert teaching practice, they commented on the personal attributes that characterize the expert and on the knowledge that is a prerequisite
for expertness. When they were asked how expertness is attained, they referred most of all to the influence of other people and to the importance of experience.

• **Expert teachers are a certain kind of person.** The respondents spoke about the internal, individual resources that are basic requirements upon which expertness can be built. They discussed characteristics that they described as innate, including the ability to learn, the right attitude, with-it-ness, and a commanding presence. They also described characteristics that they said could be cultivated, such as self-confidence, enthusiasm, a positive attitude, a sense of humour, an ability to laugh at oneself, and a sense of commitment.

  Expert teachers were described as people who like and respect students. Several of the respondents also alluded to certain personal attributes which moved teachers toward acquiring expertness, particularly the ability, willingness, or zeal to improve.

• **Expert teachers are knowledgeable.** Many teachers stated that knowledge of their own subject area was of prime importance as a prerequisite for the attainment of expertness. They also discussed the importance of being knowledgeable about ways to respond to students. A third kind of knowledge that was said to be needed pertained to teaching methods and strategies. Teachers talked, for instance, about the change in their techniques from teacher-centred to student-centred approaches.

  The expert teachers who were the respondents in this study evinced a high degree of factual and procedural knowledge themselves in their responses to the questions ascribed to the wisdom criteria. High scores on the criterion, factual knowledge, were yielded by 55% of the protocols and high scores on the criterion, procedural knowledge, were yielded by 70% of the protocols. Not only, therefore, did teachers state explicitly that knowledge of subject area and of ways of responding to students were necessary for teacher expertness; they also gave evidence of their own expertness with regard to these factors.
• **Expert teachers are interdependent.** Many of the respondents reported that other teachers were their greatest source of ideas. These other teachers were usually from the local district or neighbouring districts, or from the school where the respondent worked, although mention was sometimes made of the inspiration of teachers from their own school days, from student teacher practice, and from early teaching days. Some teachers stated that, although they might be inspired by a special speaker or clinician brought in from a distance, the effects of that kind of inspiration were not lasting.

A few teachers mentioned peer supervision and a few wanted to see mentor programs encouraged, but for the most part, teachers spoke about the rewards of informal, personal contact with their colleagues.

• **Expert teachers are experienced teachers.** Several respondents mentioned the ways their teaching practice had changed and improved over time. They alluded to the difficulties they had experienced in their first years and their sympathy for student teachers and novice teachers who were experiencing difficulties and for whom successful teaching practice could only be achieved through experience.

The expert teachers who participated in this study stated that new ideas did not become part of their repertoire of teaching skills until they had been practiced a number of times. They explained that ideas presented at workshops and conferences required field-testing, because the implementation of these ideas was dependent upon the teacher's own style, the particular group of students with which it was being used, and the effects of other variations in the teaching-learning situation. They also suggested that, even for the experienced teacher, there needed to be a continuing process of trial-and-error in the teaching process.

An evaluation of these findings, that expert teachers have certain personal characteristics, that they are knowledgeable, that they are interdependent, and that they are experienced, may lead one to conclude that not a great deal was learned about teacher
expertness as a result of interviewing forty expert teachers. The teachers’ statements seemed, for the most part, to be self-evident. The personal characteristics that the respondents discussed, for instance, were descriptors of attributes that most people might enumerate as ideal for teachers or, indeed, for anyone working with young people. Teachers’ agreement about the prime importance of these personal attributes may be noteworthy, but may not be surprising. Further, the mention of required competencies, the factual and procedural knowledge necessary for teaching expertness, refers to technical proficiencies, some of which are known to be essential in any domain (see above, p. 10). This finding, then, is also consistent with what might be expected. Again, the finding that teachers learn most from other teachers is not unexpected and is perhaps only noteworthy because of the strength of the agreement among the respondents that this is how teachers learn. And finally, it is not surprising that in teaching practice, as in many other domains, experience is essential to mastering a skill.

The results of the present study would indeed be disappointing if the overt statements of the respondents were the only data that had been analyzed and if the consequent findings were the only prominent ones. The study had been designed, however, to do more than this. Other information was present in the protocols.

Findings That Were Implicit in Teacher-Talk

It was necessary to look behind and beneath the comments of the expert teachers as much as at the comments themselves in order to gain further understanding of the nature of teacher expertness. By doing so, it was possible to uncover some of the implicit or tacit knowledge of teachers. This knowledge was inherent in some of the statements that the teachers made although it was, for the most part, indicated indirectly. The unveiling of this covert information led to findings that may be called salient because of their importance to an understanding of teacher expertness.
• Expert teachers concentrate upon their own domain and upon current practices. It has been discovered that, in a number of domains, the knowledge of the expert is often bounded by that person’s particular situation (see p. 9). Research has shown that in some occupations, workers need to concentrate upon only a narrow range of knowledge in order to achieve expertness. The present study indicates that this specificity of knowledge and skill is also applicable to teachers. The knowledge of expert teachers may be confined to their own practice and to what is current.

When the protocols were examined for evidence of the wisdom criterion, contextualism, only fourteen of the forty protocols, or 35% of them yielded high scores on this criterion. Ideally, the responses would have indicated “an awareness of the diversity of the factors which affect teaching and a knowledge of how various contexts affect teaching and learning and how they are changing” (see Appendix B). When the experts in the present study talked about their teaching practice, they tended to discuss matters that were tied to the local community, the school in which they worked, the subject which they taught, or their own classroom. Teachers whose responses did evince a high degree of contextualism tended also to present evidence of relativistic thinking. This thinking would have been indicated, according to the guide-lines provided, where the person “could reflect upon the teaching situation with a certain detachment and realized that there was more than one solution to the problem” (see Appendix B). Only fifteen of the forty protocols, or 37.5% of them yielded high scores on this criterion. Most of the teachers’ responses indicated that their reflections were embedded in their own situation.

The interdependency of teachers was discussed above (see p. 166) as one of the explicit findings about teacher expertness. This interdependency may also be seen as an indication of the desire of the teachers to concentrate upon ideas or techniques that have been demonstrated locally and that could be readily applied to their own immediate situation. It is another indication of the way teachers tend to focus upon domain-specific knowledge.
A similar conclusion could be drawn from the comments teachers made about their feelings of alienation. Several teachers discussed the lack of appreciation and encouragement that they received (p. 149). They said that they were looking for a positive response to their work from parents and other residents in their own community and from their own school administrators. Once again, this appreciation and encouragement was sought locally. A more global view of the teaching milieu was seldom evident.

Teachers appeared to respond to current trends and to be quick to abandon previous persuasions. One recurring motif that was identified in the study was the reference to co-operative learning (see p. 155). Although it was perhaps not surprising that this particular approach to teaching and learning was mentioned frequently, it did seem surprising that the approaches that had been touted in the previous few years, such as the all-pervading teacher effectiveness movement, were hardly mentioned at all. The finding that surfaced was that teacher-talk tended to be embedded in the immediate situation. Teachers talked about the “here and now”.

- **Expert teachers accept uncertainty.** Teachers stated that their work requires that they be flexible. They explained that this flexibility is required not only because the students and the classes are different each term, but also because the demands made upon teachers are constantly being altered. Although flexibility was sometimes mentioned explicitly as one of the personal attributes of expert teachers, this particular descriptor was also identified in other contexts.

When teachers responded to the question ascribed to the criterion, uncertainty, considerable evidence of this aspect of wisdom was discovered. This criterion was seen to be present when there was an awareness of the ambiguity inherent in many situations, but also confidence that the problems can be solved. More than half of the protocols yielded high scores on this criterion. Teachers indicated that they were aware of the need to be flexible in their approach to the teaching situations that they encounter.
The expert teachers in the present study mentioned the variety of learning problems that they encounter in their work with students and the need for flexibility in dealing with them. Experts, it was said, do not control students, but they look for alternate ways to engage them in the learning process. Teachers, then, are faced with ill-structured problems (see above p. 16) for which there is not a single, unequivocal solution. Indeed, expert teachers find solutions through integrating or synthesizing data from a store of knowledge and skills. Expert teachers, then, recognize the ambiguity inherent in teaching practice and are prepared to accommodate it.

- **Expert teachers are confident teachers.** Although it was never explicitly stated, it became clear as the data were explored that the respondents, for the most part, were aware of their own success. They did not say that they were successful, indeed, some demurred at being designated expert, and they seldom discussed self-confidence as a measure of other experts. There were indications, however, that the respondents themselves were confident about their mastery of professional knowledge and skills and that they knew that they were successful in their teaching practice.

The teachers did not discuss the supervision of instruction by administrators at the school or district level. They did decry the lack of attention and appreciation they received from administrators, but they did not suggest at any time that they would benefit from a principal’s or a supervisor’s observation, discussion, or instruction. The necessity of such supervision was only mentioned with regard to their unsuccessful colleagues whose work was deleterious for students. Some respondents expressed grave concern about the apparent inability of the school system to deal with these less than satisfactory teachers. Discussion of the supervision of instruction with regard to expert teachers, however, was not discussed.

The less than whole-hearted acceptance of peer supervision that was evident in the data may also be attributed to the lack of a felt need to be supervised. There may also have
been a reaction to the incongruency of the phrase, peer supervision: being a peer, an equal, is not consistent with being a supervisor, an overseer.¹

Although the experts in this study commented upon the lack of public support for teachers (see p. 151), they did not suggest that the hostile public attitude could be attributed to any failure on their part. Indeed, some of them made comments about the importance of maintaining their sense of efficacy in the face of unwarranted criticism. Again, they appeared to be confident of their ability to do the job that is required.

Some respondents mentioned their own success as students, some their curiosity and continuing desire to learn, and some the special efforts they were making to keep up-to-date on their knowledge of their subject specialty and their teaching techniques. One person commented that the purpose of the interview was not to discuss basic competence, but “fine-tuning”. These were statements that reflected feelings of self-directedness, of competence, and of self-assurance.

- Expert teachers are excited about their work. Many of the expert teachers in the present study said that they found excitement in their work. They were excited by the curriculum, the classroom situation, responding to students, and student success. Statements about these feelings were grouped together in the theme, excitement (see p. 162). Other feelings that were expressed by the teachers may be seen as a variation on the excitement theme. The protocols were laced with expressions about teaching that reflected liveliness and intense involvement. A mathematics teacher said, “You need to be on the top of your game” (29:6). Teachers spoke of the “magic” in the teaching-learning situation. They mentioned having “the real heart” and a love of their students and their subject. They said that teaching will only work when there is some fun in it. Although only

¹Several teachers also mentioned mentor programs as a means of helping novice teachers. Once again, the phrase may be an oxymoron. Can mentors be programmed?
twelve teachers actually mentioned that excitement, many other teachers discussed these variations on the excitement theme.

In summary, four findings were seen to be implicit in the teachers' discussions about the nature of teacher expertness and its attainment: expert teachers concentrate on their own domain and upon current practices, they accept uncertainty, they are confident about their teaching, and they find excitement in their work.

**Findings from the Investigation of Wisdom in Teacher Expertness**

The results of the inquiry about the wisdom in teacher expertness were first reported in Chapter 6. It was not until these results had been compared with those in Chapters 5 and 7, however, that the salient findings could be identified. Three of these emerged.

- **When the protocols were examined individually, strong evidence of wisdom assessed according to Baltes' criteria was found to be associated with some of the descriptions of teacher expertness. It was not found to be associated with the biographical or situational factors that were considered in the study, a finding which replicates that of Baltes and his associates (1989) in their general study of wisdom across the lifespan.**

  The protocols that provided strong evidence of wisdom tended to be those where comments about responding to students, about concern for the alienated student, and about the excitement of teaching practice were also provided.

- **When all of the responses to each criterion were examined, it was found that, in the teaching domain, there is strong evidence of three wisdom criteria, factual knowledge, procedural knowledge, and uncertainty.**

  The presence of the cognitive component of wisdom in procedural and factual knowledge is generally accepted in descriptions of expertness (Baltes and Smith, 1990) and so to find evidence of it in the present study of teacher expertness is not surprising. The presence of the criterion, uncertainty, however, may be particular to the teaching domain,
which is fraught with ill-defined problems and ambiguity about their solutions. The ability to respond to such situations with tenacity and courage may be a hallmark of the expert teacher.

- **Expert teachers do not embed their discussions of teaching practice in multiple, interrelated contexts.**

Their comments about expert teaching are for the most part confined to the classroom and school environment and to current teaching trends. Global, long-term educational problems are not a major consideration.

**Summary**

When the detailed analyses of the data from the present study were merged, eleven salient findings became apparent. Four of the findings were evident in the respondents’ direct statements about teaching practice. Explicit descriptors of teacher expertness were proffered, including certain personal attributes, a knowledge of subject area, of ways to respond to students, and of teaching methods. The respondents had also stated directly that expert teachers depend upon one another for ideas and inspiration and that experience is essential for expertness to develop.

These first four findings were clearly projected through the interview process. They were designated salient because of their prominence. These first findings might have been anticipated, however, and, although they may have confirmed previous knowledge, they may not be called salient because of their importance to the extension of knowledge about teacher expertness. It was the second group of four findings which may be designated salient because of the additional information they provide about the nature of teacher expertness. These findings did not emanate directly from discussions about the nature of expertness or from questions related to the wisdom criteria. They were uncovered and synthesized from an examination of comments appearing in various parts of the protocols.
These findings were that expert teachers concentrate upon their own domain and upon current practices, they accept uncertainty, they are confident about their teaching, and they find excitement in their work.

Three salient findings emerged from the application of Baltes' study of wisdom. The first of these is that there was a significant association between evidence in the protocols of the five wisdom criteria and teachers' discussions in those protocols about responding to students, about their concern for the alienated student, and about the excitement they find in their teaching practice. When all of the responses pertaining to each criterion were analyzed, it was found that there was strong evidence of the criteria, factual and procedural knowledge and uncertainty, and there was a lack of this strong evidence with regard to contextualism and relativism.

Conclusions about the effectiveness of the two lines of inquiry employed to explore the nature of teacher expertness and its attainment are included in the final chapter of this thesis.
CHAPTER 9

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

The final chapter of this thesis begins with a summary of the study. There follows a presentation of the conclusions and their implications with regard to teacher expertness and its attainment and with regard to the possibility of future research in the area.

SUMMARY

The purpose of this study was to explore the nature of teacher expertness and its attainment. Although expertness in various occupations and professions has been and continues to be explored, the study of teacher expertness has not been extensive. It was anticipated that the study would be important to the extent that it could present a picture of expert teaching practice and describe the means by which teachers become experts. It might also reveal the degree to which expert practitioners are able to describe the intricacies of their craft and the degree to which researchers are able to interpret what lies behind teachers' descriptions.

The study of teacher expertness was seen to include not only the exploration of expert teaching practice, but also the study of expert teachers. The investigation of experts led to the field of adult cognitive development and particularly to the concept of wisdom. It was decided that current studies of wisdom might be applied to the present study of expert teachers. By doing so, the present study would add to the growing body of research about the concept of wisdom and also, as it investigated the evidence of certain facets of wisdom in the statements of expert teachers, it might be important to those who are concerned with improving teaching practice.
Studies of expertness in a number of domains reveal that the knowledge of the expert is often specific, that it includes technical knowledge and tacit knowledge, and that it often spans a life-time. Experts are frequently presented with ill-structured problems which they solve by various processes.

Studies of the expertness of teachers were seen to branch into two streams: studies of expert teaching practice and studies of cognitive development. Studies of expert teaching practice have been largely observation studies. In the last decade these observation studies have been extended to include a search for an understanding of teacher thoughts. Four particular types of inquiry about teacher thoughts have been used: thinking aloud techniques, stimulated recall, policy capturing, and journal keeping. It has been found that expert teachers possess a great deal of knowledge, accumulated over long periods of time and that they have acquired a mastery of the many routines that are part of teaching practice. It is not known, however, how teachers make decisions about the use of certain methods or strategies at certain times.

Studies of adult cognitive development have frequently been based on Piaget’s research on developmental stages. Among the post-Piagetian studies are studies of wisdom which may illuminate studies of teacher expertness. In attempts to define wisdom, some of its elements have been identified, including cognition, action, and integration. When traits of wise persons have been investigated, these persons were found to be intelligent and to have a highly developed personality. In one particular study (Baltes et al., 1990 and in press), five wisdom criteria were identified: factual knowledge, procedural knowledge, contextualism, relativism, and uncertainty.

From the studies of expert teaching practice and the studies of adult cognitive development, two lines of inquiry emerged for the design of the present study: first, an investigation of teachers’ explicit and implicit knowledge of expert teaching practice and second, an investigation of certain aspects of the wisdom of expert teachers. The first line of inquiry was pursued through asking teachers to discuss expert teaching practice; the
second was attempted through the adaptation of a framework for assessing the presence of certain wisdom criteria in protocols (Baltes et al., in press). These two lines of inquiry were the basis for the design of the study.

As a forerunner to the development of an instrument to be used for data collection, a small exploratory study was undertaken. The exploratory study consisted of interviews with three teachers, interviews in which the subjects were asked to recall a lesson that they had taught recently, to describe parts of the lesson that they believed were successful, and to discuss the source of their ideas about how to teach. An analysis of the transcripts yielded from the interviews revealed a certain lack of focus in the discussions and some difficulty in assessing the wisdom criteria. As a result, six questions were developed. One of these was related to each of the wisdom criteria and a sixth question asked directly what the subjects believed constituted teacher expertness.

The subjects for the study were forty secondary school department heads in the fields of English, mathematics, physical education, science, and social studies. These teachers, all from one large school district in British Columbia, had volunteered to participate in the study. Each teacher was interviewed, audio-tapes yielding transcripts for analysis.

Some of the data were analyzed by means of a content analysis procedure developed by the researcher and some by means of a modification of an analysis of wisdom developed by Baltes and his associates (in press). In a final analysis, the protocols were reviewed and certain pervasive themes were identified. The three kinds of data analysis permitted eleven salient findings to emerge (see Table 9.1).

Four of these findings were a result of teachers' explicit descriptions of the nature of teacher expertness and its attainment. These findings were that expert teachers are a certain kind of person, that they are knowledgeable, that they are interdependent, and that they are experienced teachers. These findings were prominent, but they were not unexpected.
From teachers’ explicit comments:

1. Teachers are a certain kind of person.
2. Teachers are knowledgeable.
3. Teachers are interdependent.
4. Teachers are experienced.

From what was implicit in teachers’ comments:

5. Teachers concentrate upon their own domain and upon current practices.
6. Teachers accept uncertainty.
7. Teachers are confident.
8. Teachers are excited about their work.

From the investigation of aspects of wisdom in teachers’ comments:

9. There is an association between evidence of some aspects of wisdom and some descriptions of expertness
   — responding to students,
   — alienation of students,
   — excitement in teaching practice.
10. Expert teachers evince strong factual and procedural knowledge and ability to accept uncertainty.
11. Teachers do not embed their discussions of teaching practice in multiple, interrelated contexts

Further findings were not the result of direct statements, but were implicit in the teachers’ discussions of their work. These findings are that expert teachers concentrate upon their own domain and upon current practices, that they accept uncertainty, that they are confident teachers, and that they are excited about their work. These findings, although they might not have been anticipated and were not as visible as the first group, provided additional information about teacher expertness. The final group of findings resulted from the investigation of certain aspects of wisdom in teacher expertness. The first of these findings was that there was an association between evidence of the wisdom criteria investigated in the protocols and some descriptions of expertness in these same protocols. In particular, strong evidence of wisdom was associated with discussions about the need to respond to students, about the alienation of students, and about the excitement inherent in teaching practice. There was not, however, a significant association between the length of
teaching experience, gender, type of school, or subject area of the teachers and evidence of the wisdom criteria in the protocols. When all of the responses pertaining to each of the criteria were considered, it was found that expert teachers evince in-depth factual and procedural knowledge, and are able to accept the uncertainty that characterizes their work. There is not strong evidence that teachers centre their ideas and convictions in broad contexts and think about their work in a relativistic manner.

CONCLUSIONS AND THEIR IMPLICATIONS

This study was designed to answer two fundamental questions: (1) Is it possible to access the knowledge of expert teachers and so to increase understanding of the nature of teacher expertness? (2) Is it possible to discover what constitutes the wisdom of expert teachers and so to increase understanding of the nature of teacher expertness? The findings from the study have provided for affirmative answers to both of the questions. These and other conclusions drawn from the study, and the implications derived from them, have been summarized in the following section. Also included are some recommendations for future research in this area.

Conclusions about Teacher Expertness and Its Attainment

1. *Listening to expert teachers as they discuss their practice increases and confirms what is known about expertness in a number of domains.*

Studies have shown that the knowledge of the expert is often specific, that some of it is technical, and that some of it is tacit. It has also been shown that experts tend to deal with ill-structured problems and that they have a store of ways to deal with these problems. Research has shown as well that experience is necessary for expertness to develop (see above, p. 8). Several of the findings from the present study about teacher expertness are allied to these former findings. It was found, for instance, that expert teachers tend to
concentrate on their own domain and upon current practices, that they are knowledgeable, that they can accept uncertainty, and that they are experienced. By listening to expert teachers, then, it has been possible to extend knowledge of certain aspects of expertness in general to include knowledge of teacher expertness with regard to these aspects.

Listening to expert teachers, on the other hand, has also been a means of increasing knowledge of the particular expertness of teachers, knowledge which may be applicable to experts in other domains. It was found, for instance, that teachers are interdependent, that they are confident, and that they are excited about their work. These latter findings have not usually been included in descriptions of expertness in general, but, as they are applicable to teaching practice, they may also be applicable to other domains.

2. When expert teachers discuss their teaching practice, their explicit statements are limited, for the most part, to confirming what is known or what is often stated about that expert practice.

Teachers made explicit statements about the nature of teacher expertness and its attainment. They stated that expert teachers possess certain personal attributes and that they are knowledgeable about their subject area, about ways to respond to students, and about teaching methods. They also stated that expert teachers depend upon one another for ideas and inspiration and that experience is essential for expertness to develop. These findings are not novel and are perhaps only noteworthy because of the level of agreement among the teachers about the descriptors.

The conclusion is that not much new knowledge is gained from the explicit statements expert teachers make about their practice and the implication is that other, less direct inquiry needs to be undertaken to gain insight about teacher expertness.

3. It is possible to gain new insights about the nature of teacher expertness and its attainment by paying attention to what is implicit in teacher-talk.
In this study, the findings which added to knowledge of expert teaching practice were revealed as teachers talked about their craft, but they were not the results of direct statements meant to describe that craft. They were the results of an uncovering and synthesizing of comments that were made throughout the interviews. By paying attention to what was implicit in teachers’ discussions, new information was garnered. It was found that expert teachers concentrate upon their own domain and upon current practices, that they accept uncertainty, that they are confident about their teaching, and that they find excitement in their work. These four findings are not, for the most part, included in descriptions of teacher expertness.

The conclusion, that it is possible to learn about teacher expertness by indirect means, confirms Berliner’s (1986) conviction that the knowledge of expert teachers is more readily available and more codifiable than many people think. The implication is that further knowledge of teacher expertness may be obtained by listening to expert teachers and by examining what is implicit in their conversation.

4. It is possible to extend knowledge of the teaching domain by investigating the wisdom of expert teachers. In particular, the model developed by Baltes and his associates evoked evidence, or lack of evidence, of five wisdom criteria. Analysis of the protocols for evidence of these criteria was responsible in part for the salient findings of the study.

In conjunction with other lines of inquiry, the use of Baltes’ study of wisdom led to three of the findings in this study: that teachers are knowledgeable, that they tend to concentrate upon their own domain and upon current practices, and that they accept uncertainty. That these findings were reached with the assistance of this model implies that the model might also be used successfully in the investigation of expertness in other domains.

5. The use in this study of two lines of inquiry and three analytical approaches enriched the data and increased the possibility of learning about teacher expertness.
This study was designed to follow two lines of inquiry, one in pursuit of the wisdom of expert teaching practice and the other in pursuit of the wisdom of expert teachers (see, Chapter 3). The data collected from teachers’ discussions of their practice and from their responses to questions ascribed to wisdom criteria were analyzed in three ways: for the descriptions of expert teaching practice, for evidence of the wisdom criteria, and for themes (see Chapter 4). It was the assimilation and synthesis of the findings from these two lines of inquiry and these three analytical approaches that permitted the identification of salient findings. Uncovering what was implicit in the respondents’ statements was particularly dependent on having rich data and more than one method of analysis.

The implication that can be derived from this conclusion is that studies of teacher expertness may be most effective if they are designed to approach the investigation from more than one perspective.

6. The size of the sample used in this study did not permit significant findings about the relationships between certain biographical and situational factors and the agreement of teachers about the elements of expertness or between these biographical and situational factors and evidence of wisdom in the protocols. The size of the sub-groups within the sample limited the results of the analysis (N ranges from 5 to 29, depending on the sub-group being analyzed).

The forty teachers who participated in this study comprised a group large enough to provide a wealth of descriptions of teacher expertness. When sub-groups were formed according to certain biographical factors, length of experience and gender, and certain situational factors, type of school and subject area taught, these sub-groups were too small to permit significant findings from the comparison of the sub-groups to comments about the elements of expertness, with responses that gave evidence of the wisdom criteria, or with comments indicating the presence of certain themes. Analysis of the relationships between the sub-groups and other data classifications was only useful as it showed that the
findings did not pertain to one particular group or another. Further research with regard to the views of teachers, distinguished by particular biographical or situational features, might reveal significant differences in their perspectives.

7. **Expert teachers are prepared to assume responsibility for their own continuing development.**

The respondents have stated either directly or indirectly that expert teachers are knowledgeable, interdependent, and experienced; that they tend to concentrate on their own domain and upon current practices; that they appear to be able to accept the uncertainty inherent in their work; that they are confident about the expertness of their teaching practice; and that many of them are excited about their work. These descriptors of expert teachers present a picture of a self-sufficient, intact group, complete in itself. Expert teachers are likely to find information, ideas, and inspiration from other experts in their field, preferably those close at hand. Their only requirement from outside sources is for time and opportunity to interact with their peers or other experts of their choice.

8. **Expert teachers, for the most part, are not prepared to assume responsibility for improving the practice of their less-than-expert colleagues.**

Apart from gaining some teaching experience, which teachers have identified as a necessary, though not sufficient requirement for the attainment of expertness, the best help for beginning teachers would seem to emanate from expert teachers. The findings indicate that this help may not come from peer "supervision" or mentor "programs"; it is more likely to evolve informally, in response to specific needs, and may result more from the availability of time and opportunity than from discrete programs. Expert teachers, however, tend to call upon the school district to organize "mentor programs" and "peer supervision" or call upon principals to deal with less-than-satisfactory or burned-out teachers.
9. *Administrative officers in secondary schools do not increase the expertness of teachers through the supervision of instruction. They can be effective as guardians who protect students from less than satisfactory teachers and as supporters who provide encouragement and appreciation to expert teachers.*

The finding that knowledge of subject area is considered by teachers to be an important element of teacher expertness has a bearing on teachers' views of the role of administrators. It is generally agreed that administrators in secondary schools cannot be expected to be knowledgeable about teachers' subject areas. But because this knowledge is seen to be an important component of teacher expertness, teachers may not consider administrators to be competent to act as supervisors of instruction. It may be argued that it is possible for administrators to determine whether or not learning is taking place despite their lack of subject area knowledge, but if teachers do not believe that this is possible, the supervision is not likely to be effective.

Teachers did not mention school and school district administrators in their discussions of the way they attained their expertness nor was the role of principals or school district officials as supervisors of instruction discussed by these expert teachers. A number of respondents did mention, however, their desire to be recognized and appreciated by supervisors.

Some teachers commented on their perception that administrators are negligent about dealing with teachers who are not providing satisfactory service to students. In this regard, the administrative function was not discussed as one of formative evaluation for the purpose of improving teaching practice, but rather of summative evaluation for the purpose of terminating an assignment.

**Conclusions about Future Research in the Area of Teacher Expertness**

The nine major conclusions about the nature of teacher expertness and its attainment were drawn with caution. There were certain ubiquitous questions: Did the statements that
teachers made truly reflect their convictions about their work? Were these statements interpreted judiciously? Conclusions about future research in the area are made with these concerns in mind.

10. It is probable that more information can be uncovered about the nature of teacher expertness and its attainment through listening to expert teachers discuss their practice.

The new information that was acquired in the present study was, for the most part, the result of what was implicit in teachers' discussions of their practice. The overt statements that they make tend to describe what is commonly known or believed. It is the interpretation of what is implicit in their discussions which reveals their tacit knowledge and leads to an understanding of the intricacies of their craft.

11. Further use of Baltes' framework for studying wisdom may be helpful in the investigation of various work domains.

Baltes' framework for studying wisdom was a useful construct for the present study. The five wisdom criteria, and the adaptation of the model for use with teachers, illuminated some of the characteristics of expert teachers. It seems likely that the model could be adapted for use in studies of other domains. It would be useful to compare the findings from the present study of teachers with findings from studies of experts in other fields.

12. The present study indicates that further research may well be undertaken with regard to the extent to which expert teachers are given responsibility for their own professional development activities and for that of their less expert colleagues.

Expert teachers in the present study revealed themselves to be a self-contained group of people, able to assume responsibility for their own continuing development. They do not, for the most part, credit school or school district administrators with assistance in their development as experts, but rely upon their colleagues as sources of inspiration and
ideas. The question arises: How much do school districts rely upon expert teachers to promote expertness amongst themselves and their less expert colleagues? The answer to this question may give direction to those who now assume responsibility for the professional development of teachers.

13. The practice of instructional supervision in secondary schools requires further study with regard to basic assumptions about its effectiveness.

Expert teachers in the present study almost completely ignored the topic of instructional supervision. When they did mention it as part of the role of administrators, they discussed the failure of these officers to attend to their less-than-satisfactory colleagues. If administrators are no more effective as instructional leaders than the present study suggests, then the task should be delegated to others or the practice of instructional supervision itself should be evaluated.

To conclude: Because this was an exploratory study, it posed as many questions as it answered. It has, however, tested some ways of investigating the nature of expert teachers and their practice, and it has illuminated some facets of teacher expertness and its attainment.
REFERENCES


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APPENDICES
APPENDIX A

THE INTERVIEW

Introduction and Discussion of Nature and Development of Expertness

Teachers were led to talk about their expert teaching practice and eventually to describe the way in which they learned to be expert teachers. Sample guidelines for directing the discussion and explanations of the guidelines follow.

<table>
<thead>
<tr>
<th>DIRECTION</th>
<th>EXPLANATION</th>
</tr>
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<tbody>
<tr>
<td>To begin, will you tell me about the last lesson you taught? When would that have been?</td>
<td>This might have been in the class period before the interview, it might have been during the previous day, or some other time.</td>
</tr>
<tr>
<td>What was the course you were teaching? At what grade level?</td>
<td>If the teacher had not mentioned the particular focus of the lesson, probes were used to encourage the teacher to do so.</td>
</tr>
<tr>
<td>Was there something about the lesson that particularly pleased you?</td>
<td>If not, the teacher was led to discuss some other lesson with such an episode.</td>
</tr>
<tr>
<td>How did you learn to teach that way?</td>
<td></td>
</tr>
</tbody>
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Six Questions

1. Have there been many changes in the curriculum in your teaching area in the last five years? (If “Yes”) What are these changes?
2. Have your teaching methods or techniques or your ways of working in the classroom changed very much since you began to teach? (If “Yes”) Please explain some of these changes. (If “No”) Why have there not been changes?

3. What change is needed for students and teachers to be more successful in the schools of tomorrow than they are in schools today?

4. Suppose that a teacher in your department tells you that he is “burned out”, that he no longer enjoys teaching, but, since he has a family to support and is fifteen years away from retirement, he must continue to teach. He asks your advice. If this is all the information you have about the situation, what advice would you give him?

5. Do you think there is a right way to teach your subject?

6. What do you think makes for expertness in teaching?

**Conclusion**

To conclude the interview, the researcher asked if there were any further matters that the teacher would like to discuss.
INTERVIEW QUESTION #1 (CRITERION, "FACTUAL KNOWLEDGE")

CHARACTERISTICS OF AN IDEAL RESPONSE, AND
CRITERIA FOR THREE SCALE POINTS

Question #1: Have there been many changes in the curriculum in your teaching area in the last five years? (If “Yes”) What are these changes?

Characteristics of an ideal response: An ideal response will indicate in-depth knowledge of the content of the curriculum and an awareness of its continuing evolution.

Criteria for 3 scale points:
1. Very little resemblance to an ideal response. This person displays a lack of knowledge of the curriculum and its development because...

4. A moderate resemblance to an ideal response. This person has some knowledge of his subject area, but his/her knowledge is limited or s/he has not kept abreast of new developments. The response is less than ideal because...

7. Closely fits what could be included in an ideal response. This person appears to have an in-depth knowledge of the curriculum in his/her teaching area and to be keenly aware of recent developments in the field. This knowledge is indicated by...
INTERVIEW QUESTION #2 (CRITERION, "PROCEDURAL KNOWLEDGE"), CHARACTERISTICS OF AN IDEAL RESPONSE, AND CRITERIA FOR THREE SCALE POINTS

Question #2: Have your teaching methods or techniques or your ways of working in the classroom changed very much since you began to teach? (If "Yes" Please explain some of these changes. (If "No") Why have there not been changes?

Characteristics of an ideal response: An ideal response will indicate that the subject understands the nature and diversity of possible teaching techniques and is open to the possibility of varying teaching strategies.

Criteria for 3 scale points:
1. Very little resemblance to an ideal response. This person is not concerned about solving teaching problems or finding alternate ways of working with students in the classroom. This is evidenced by...

4. A moderate resemblance to an ideal response. This person can talk in detail about life in classrooms, but is not prepared to take responsibility for finding solutions to the difficult problems inherent in teaching students in schools. The response is less than ideal because...

7. Closely fits what could be included in an ideal response. This teacher appears to have a depth of knowledge about teaching procedures and to be able to apply this knowledge to classroom situations. S/he is willing to search for new ways to achieve success with students. This conclusion is based on...
APPENDIX B (3)

INTERVIEW QUESTION #3 (CRITERION, "CONTEXTUALISM"),
CHARACTERISTICS OF AN IDEAL RESPONSE, AND
CRITERIA FOR THREE SCALE POINTS

Question #3: What change is needed for students and teachers to be more successful in the schools of tomorrow than they are in schools today?

Characteristics of an ideal response: For a response to be judged ideal, the subject will indicate an awareness of the diversity of the factors which affect teaching and a knowledge of how various contexts affect teaching and learning and of how they are changing.

Criteria for 3 scale points:
1. Very little resemblance to an ideal response. This person gives little impression that s/he thought contextually about this problem because...

4. A moderate resemblance to an ideal protocol. This person discussed many of the background contexts cued by the problem, but his/her response is less than ideal because...

7. Closely fits what could be included in an ideal response. This teacher gives the impression of a great awareness of the many factors which affect teachers and students and their interaction in classrooms because...
APPENDIX B (4)

INTERVIEW QUESTION #4 (CRITERION, "RELATIVISM"),
CHARACTERISTICS OF AN IDEAL RESPONSE, AND
CRITERIA FOR THREE SCALE POINTS

Question #4: Suppose that a teacher in your department tells you that he is “burned out”, that he no longer enjoys teaching, but, since he has a family to support and is five years away from retirement, he must continue to teach. He asks your advice. If this is all the information you have about the situation, what advice would you give him?

Characteristics of an ideal response: An ideal response will give evidence that the subject can reflect upon the teaching situation with a certain detachment and realizes that there is more than one possible solution to a problem.

Criteria for 3 scale points:
1. Very little resemblance to an ideal response. This teacher gives the impression that there is one simple solution to such a problem. This appears to be so because...

4. A moderate resemblance to an ideal protocol. Although this teacher is sympathetic and mentions that there could be alternative plans and decisions, the teacher does not mention the importance of analyzing the “burned out” person’s situation and its possible remediation.

7. Closely fits what could be included in an ideal response. This teacher gives the impression that s/he understands the person’s problem and is able to think in a relativistic way because...
INTERVIEW QUESTION #5 (CRITERION, "UNCERTAINTY"),
CHARACTERISTICS OF AN IDEAL RESPONSE, AND
CRITERIA FOR THREE SCALE POINTS

Question #5: Do you think there is a right way to teach your subject?

Characteristics of an ideal response: A response will be assessed “ideal” if the subject
states that there is more than one right way to teach his/her subject and indicates that s/he
respects the styles and methods of other teachers.

Criteria for 3 scale points:
1. Very little resemblance to an ideal response. This person believes that there is only one
   right way to teach his/her subject. This is evident because...

4. A moderate resemblance to an ideal protocol. This teacher includes a general comment
   concerning varieties of styles and methods, but the response is less than ideal
   because...

7. Closely fits what could be included in an ideal response. This teacher gives the
   impression that s/he is knowledgeable about a variety of teaching styles and methods
   and has chosen his/her way from a number of possible ways to achieve success. This
   attitude is evident because...
APPENDIX C

SCHOOL DISTRICT POLICY:

APPOINTMENT OF SECONDARY SCHOOL

DEPARTMENT HEADS
Objective: To improve the quality of instruction in the subject department to which he/she has been assigned.

Policy

I. Duties and Responsibilities of a Department Head

(A) Primary Role

1. To provide leadership in educational instruction within the expectations set by the Ministry of Education, the policies of the School Board, and the school’s objectives.

2. To encourage initiative and co-operation between the members of his/her department and to motivate, guide and organize them in order to maintain a good standard of instruction.

3. To consult, communicate and work with the school’s administrative team and the District Staff in matters affecting instruction and curriculum.

(B) Instruction Role

1. The department head will work with the teachers in the subject area:

   a) to establish programme objectives which are matched with the school objectives and school district goals, and provincial guidelines.

   b) to establish department priorities on a semester and/or yearly basis.

   c) to evaluate progress towards these objectives, goals and guidelines on a semester and/or yearly basis.

2. The department head will provide leadership in development of the school curriculum to meet the needs of pupils by:

   a) implementing course changes as required by the Ministry,
I. Duties and Responsibilities of a Department Head (Cont'd.)

(B) Instruction Role (Cont'd.)

2. b) modification of current courses,
   c) introduction of new courses,
   d) selection of textbooks and resource materials.

3. The department head will provide leadership in setting standards of pupil performance by:
   a) working with teachers to improve their procedures for pupil evaluation,
   b) promoting consistent standards and performance objectives within the subject area.

4. Other duties and responsibilities:
   a) promote professional development through the
      - exchange of ideas with members of the subject area,
      - discussion of teaching aids and techniques,
      - attendance at in-service programmes, workshops and/or conferences,
   b) orient teachers new to the subject area,
   c) work with the librarian to co-ordinate the selection of pupil materials,
   d) make teachers aware of appropriate community facilities and resource persons,
   e) encourage communication with elementary and secondary schools,
   f) co-operate with other departments within the school.

(C) Administrative Role

The department head will also:

1. serve as a member of the principal's administrative team,
2. assist the principal, when requested, in determining teaching assignments and in hiring new teachers within the departments,

3. organize and convene regular departmental meetings at which minutes are kept,

4. prepare departmental budgets when required, and if necessary, supportive briefs for the budget,

5. be responsible for inventories and the requisition of supplies and equipment,

6. be responsible for arranging maintenance of department equipment,

7. when requested, advise on plans for additions and alterations in the school.

II. Assignments of Department Heads in Surrey

Consideration for the appointment of department heads shall rest on the following criteria:

<table>
<thead>
<tr>
<th>PUPILS</th>
<th>DEPARTMENT HEADS</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 600</td>
<td>3.5 major department heads</td>
</tr>
<tr>
<td>601 to 800</td>
<td>4 major department heads</td>
</tr>
<tr>
<td>801 to 1000</td>
<td>5 major department heads</td>
</tr>
<tr>
<td>1001+</td>
<td>6 major department heads</td>
</tr>
</tbody>
</table>

1. Enrollment shall be based on school enrollment as at September 30th of the current school year.

2. Subject to the condition that no more than one major department head is appointed to any subject area, a school may elect to appoint two (2) minor department heads in place of one (1) major department head.

3. Allocation of department heads to subject areas (or combination of subject areas) shall be at the discretion of the principal through staff consultation.

4. Consideration may be given to schools having special circumstances for the further allocation of department heads at the discretion of the Superintendent of Schools.
III. Qualifications for Assignment

Candidates for department head should have:

1. a valid Professional B.C. teaching certificate and a major or equivalent in the subject area for which the appointment is made,

2. a record of several years successful and enthusiastic teaching,

3. the ability to lead, to organize and to work with others,

4. a major part of his/her teaching load in that subject area,

5. participated in appropriate professional development programmes, seminars and/or workshops.

IV. Method and Terms of Appointment

1. The Superintendent will make such appointments as are deemed appropriate, based on the principal’s recommendations accompanied by completed application forms. All appointments will terminate at the end of the school year for which the assignment was made.

2. Every effort is to be made to ensure that department heads have adequate time to meet their departmental responsibilities.

3. Compensation for department heads shall be made in accordance with the teachers’ salary agreement.

4. If a vacancy occurs and is not filled within the school, the position of department head should be advertised.

Transferred: 1986-05-29
Amended: 1984-05-07
" 1980-05-05
Adopted: 1979-08-20
Method and Terms of Appointment

Principals shall make recommendations to the Superintendent on the prescribed recommendation form #36.11.2T (copy attached), not later than May 31st for the following school year, and confirmation of these appointments should be received not later than the last school day in June of the same year. The school's entitlement must be reviewed by the principal at the end of September to ensure that the number of appointments coincides with the provisions of Board policy.
RECOMMENDATION FOR DEPARTMENT HEAD

Date:____________________

School:_____________________________________________________

Subject Area:_________________________________________________

Major or Minor Position:________________________________________

Please supply the following information:

1. Name of teacher recommended for department head:

2. Degrees held: _____________________________________________

3. Certificate held: __________________________________________

4. Subject majors or equivalent: _________________________________

5. Teaching experience: _______________________________________
   - in this department: _________________________________________

6. Teaching assignment in September:

7. Projected school enrollment for September:

8. Actual enrollment - September 30th:
   (to be completed by Superintendent's office:)

Supporting statement on teacher recommended:

Principal's Signature_________________________________________

Approval of Superintendent_____________________________________

Before submitting recommendations, principals are advised to review School Board Policy 7505.
APPENDIX D

PERMISSION TO COLLECT DATA
APPENDIX E

RATINGS AWARDED ON QUESTIONS ONE TO FIVE
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| TOTAL      | 205 | 217 | 168 | 173 | 193 |

© 192
APPENDIX F

CHI SQUARE CALCULATIONS
Table 5.5. Values of Chi Square Yielded by Comparing Numbers of Teachers with Certain Biographical Characteristics with Discussion of Elements of Expertness and Its Attainment

<table>
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<th>ELEMENTS</th>
<th>YEARS OF EXPERIENCE</th>
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<tr>
<td>Personal attributes</td>
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<tr>
<td>Responding to students</td>
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</tr>
<tr>
<td>Knowledge of subject area</td>
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<td>0.0</td>
</tr>
<tr>
<td>Other people</td>
<td>7.3</td>
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</tr>
<tr>
<td>Workshops</td>
<td>2.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Reading</td>
<td>0.9</td>
<td>3.5</td>
</tr>
<tr>
<td>Experience</td>
<td>0.6</td>
<td>1.0</td>
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</table>

Table 5.6. Values of Chi Square Yielded by Comparing Assignments of Teachers and Number Who Made Statements about Expertness and Its Attainment

<table>
<thead>
<tr>
<th>ELEMENTS</th>
<th>TYPE OF SCHOOL</th>
<th>SUBJECT AREA</th>
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<td>Personal attributes</td>
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<tr>
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<td>2.5</td>
</tr>
<tr>
<td>Knowledge of subject area</td>
<td>6.4</td>
<td>5.9</td>
</tr>
<tr>
<td>Other people</td>
<td>2.5</td>
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<td>9.3</td>
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<tr>
<td>Experience</td>
<td>1.0</td>
<td>3.8</td>
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</table>
Table 6.10. Values of Chi Square Yielded by Comparing Responses Rated 5, 6, or 7 on Wisdom Criteria with Biographical Factors

<table>
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<tr>
<th>CRITERION</th>
<th>YEARS OF EXPERIENCE</th>
<th>GENDER</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>df=2</td>
<td>df=1</td>
</tr>
<tr>
<td>Factual knowledge</td>
<td>1.0 p&lt; .51</td>
<td>0.0 p&lt; 1.00</td>
</tr>
<tr>
<td>Procedural knowledge</td>
<td>2.6 p&lt; .26</td>
<td>1.7 p&lt; .20</td>
</tr>
<tr>
<td>Contextualism</td>
<td>4.5 p&lt; .10</td>
<td>0.4 p&lt; .50</td>
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<tr>
<td>Relativism</td>
<td>4.9 p&lt; .09</td>
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<tr>
<td>Uncertainty</td>
<td>0.7 p&lt; .70</td>
<td>0.0 p&lt; 1.00</td>
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Table 6.11. Values of Chi Square Yielded by Comparing Responses with Scores Rated 5, 6, or 7 on Wisdom Criteria with Situational Factors

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<td>Factual knowledge</td>
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<td>4.2 p&lt; .40</td>
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<tr>
<td>Procedural knowledge</td>
<td>3.9 p&lt; .15</td>
<td>4.2 p&lt; .40</td>
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<tr>
<td>Contextualism</td>
<td>1.2 p&lt; .53</td>
<td>3.3 p&lt; .50</td>
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<tr>
<td>Relativism</td>
<td>2.5 p&lt; .28</td>
<td>0.4 p&lt; .99</td>
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<tr>
<td>Uncertainty</td>
<td>2.1 p&lt; .34</td>
<td>3.1 p&lt; .52</td>
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Table 6.12. Values of Chi Square Yielded by Comparing Responses Rating Total Scores on Wisdom Criteria of One Standard Deviation Above or Below the Mean with Biographical and Situational Factors

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<th>HIGH AND LOW SCORES</th>
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<th>GENDER</th>
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<td>0.5</td>
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<tr>
<td>Mean +1 S.D.</td>
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<td>5.1</td>
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<tr>
<td>Mean -1 S.D.</td>
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Table 6.15. Values of Chi Square Yielded by Comparing Total Scores on the Five Wisdom Criteria of One Standard Deviation Above or Below the Mean with Mention of Elements of Expertness

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<th>ELEMENTS</th>
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<td>Personal attributes</td>
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<tr>
<td>Responding to students</td>
<td>3.5 p&lt; .05</td>
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<td>Knowledge of subject area</td>
<td>1.7 p&lt; .20</td>
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<tr>
<td>Other people</td>
<td>0.7 p&lt; .40</td>
</tr>
<tr>
<td>Workshops</td>
<td>0.0 p&lt; 1.00</td>
</tr>
<tr>
<td>Reading</td>
<td>0.0 p&lt; 1.00</td>
</tr>
<tr>
<td>Experience</td>
<td>0.0 p&lt; 1.00</td>
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Table 7.4. Values of Chi Square Yielded by Comparing Total Scores on Five Wisdom Criteria of One Standard Deviation Above and Below the Mean with Four Themes

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<th>Chi Square Values (with Probability Level)</th>
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<tr>
<td>Alienation of teachers</td>
<td>1.6, p&lt; .20</td>
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<tr>
<td>Excitement</td>
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<td>Cooperative learning</td>
<td>0.6, p&lt; .40</td>
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