PROBLEM-SOLVING EXPERTISE OF BUILDING LEVEL ADMINISTRATORS: A QUALITATIVE STUDY

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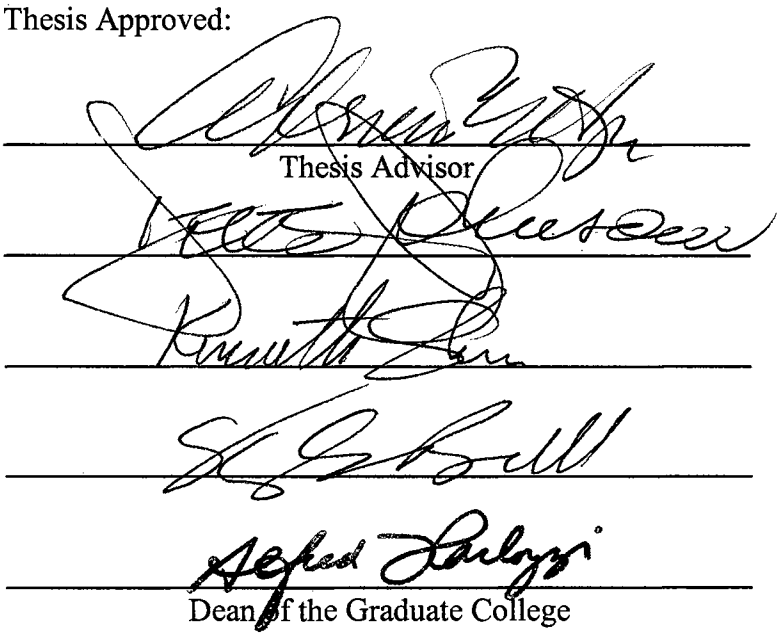

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PREFACE

This paper was prepared in the hope of providing a beginning point for the study of expertise of public school administrators, specifically building level administrators. That purpose has been accomplished, although more study is needed. A sister study was conducted at the time of this study that looked at the expertise of public school superintendents.

The conclusions here represent the findings of this study and are not comprehensive. More study is needed. It is my hope, that with more study, the future will provide us with a systematic method for determining expertise is administrators that can be used in administrator education and training programs.

I sincerely thank my Doctoral Committee - Drs. Kay Bull, Wilbur "Deke" Johnson and Ken Stern - as well as my thesis advisor, Dr. Adrienne Hyle for their time, support and effort. I also wish to thank Alan Baker, Ed.S. for his relentless motivation and enthusiasm, which helped me in completing this study. I am also thankful to him for doing the sister study with public school superintendents.

Another special thank you is given to the eight building level administrators who participated in this study. Their willingness to give of their time and to be frank and open allowed me to gather data that is both informative and useful.

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CHAPTER I

Design of the Study

> Starting in the 1960s, the cognitive revolution in academic psychology has both increased our awareness of the extensive cognitive activity underlying even apparently simple tasks and provided research techniques and theories for characterizing covert cognition (Chipman, Schraagen, Maarten, Shalin, 2000, p. 3).

This research took on and evolved into what is now described as expertise research. In 1972, Newell and Simon published *Human Problem Solving*, which has since served as a beginning point for cognitive psychology research into what is now called "expertise." In realistic terms,

> an expert is usually defined … as someone who performs at the level of an experienced professional: an MD in medicine, a Master or Grandmaster in chess, an experienced systems programmer, a practicing attorney, an engineer employed in design and so on (Richmond, Gobet, Staszewski & Simon, 1996, p.168).

However, Bereiter and Scardamalia (1993, p. 3) define expertise as "the effortfully acquired abilities that carry individuals beyond what nature has specifically prepared them to do." These definitions imply that experts make their work look deceptively simple.

Researchers universally agree that an essential component in expertise is the acquisition of knowledge related to the domain of expertise. Chi, Glaser and Farr (1988) state that the obvious reason for excellence of experts is that they have a good deal of domain knowledge. From his study of chess masters, de Groot (1965) states that expertise depends on acquiring large stores of relevant knowledge that are then accessible for use within the expert domain. Ericsson, Krampe and Tesch-Romer (1993) studied performance identifying training activities they call "deliberate practice." Their study suggests that regardless of the amount of daily or weekly practice, it is the lifetime-accumulated practice that defines the ability of an individual and his expertise.

A measurement of expertise generally involves aspects of decision-making skills (Farson, 2002). Because problem-solving encompasses decision-making, expertise in problem-solving skills as it relates to a school administrative role is important for many reasons. Among them is the need for the skill to maintain the public's trust in interactions that the administrator must have with the public on any of the varied necessary matters. Also important is the need for decisions that involve faculty and staff members as to tenure, practice and management. Also, the skills necessary to make just decisions relating to students as both individuals and groups in many different educational contexts are important motives for administrative expertise. Still other rationales emphasize problem solving skills that involve the use of school facilities; the best practices in education; helping students meet minimum standards of rigor; multicultural and gender issues; school law; testing; and in the financial considerations of the school (Lease, 2002).

> Administrators often have to make numerous decisions on rather small matters. But the mark of expertise in administration is to make decisions that not only take care of the immediate problem but that at the same time support the higher-level goals of the organization (Bereiter & Scardamalia, 1993, p. 57).

In general, it is common thought that longer-term administrators should have gained a greater degree of expertise, primarily due to time on the job and self-confidence than less experienced administrators (Leithwood, Steinback, & Raun, 1993). Oklahoma stands to lose many administrators and much expertise in school administration to retirement because of the aging of the administrator population. The individuals who comprise the governing boards of the State of Oklahoma have begun to realize the impact the retirement of administrators could have on state schools. Recent legislation, consequently, deals with the standards for administrator certification. This legislation relaxes the standards which guides potential administrators through the certification process. Currently, individuals who have both an advanced degree (Masters or higher) and teacher certification in at least one area may test for an administrator certificate (School Laws of Oklahoma 2000, Sec 180.9). These relaxed standards will unquestionably make it possible to fill vacancies caused by retirement and attrition. It does nothing, however, to replace the problem-solving expertise lost with these retiring individuals. Expertise researchers admit that "talent, skill, specialization, professionalism, experience, authority and credentialling" (Bereiter & Scardamalia, p. 5) are not traits that conclusively assure expertise, however, the ease in credentialling practice will most certainly keep an adequate supply of candidates available for any vacated positions.

As we all are, educators entering administration are individuals and have individual experiences in education. Further, each has that knowledge that comes from course work at the graduate level required for certification. This experience is as varied as the number of individuals. However, this entry-level experience is probably not enough to assure the same level of success in expertise, as does the experience of a long-term educator. It is a common assumption that regardless of a person's previous professional position, an administrator with fewer years of experience will have less expertise in problem solving than a long time administrator. This supposition is born from the knowledge that it takes many years to gain expertise as demonstrated in other disciplines. "The consistent (and unsurprising) finding of research is that experts can solve problems in their domain that novices cannot solve, or in the case of problems solvable by novices, experts can solve them much more rapidly and accurately" (Richmann, et al., 1996, p.169). It is conceivable then, to conclude that expert administrators behave in similar fashions when problem solving. "Although differences in talent seemingly make it much easier for some people than others, we know that in general it takes a great deal of time and experience to become an expert" (Bereiter & Scardamalia p. 16). Hayes (1985) estimates that it takes 10,000 hours of time and experience for the gaining of expertise. He reaches this conclusion after studying the biographies of many experts in fields such as concert piano.

Administrators bring with them into the profession a varied and abundant amount of life experiences and knowledge gained from these experiences. These experiences form from personal interactions that begin before conscious memory in childhood and continue throughout each individual's life. For an administrator, time spent in academic

endeavors, training programs, the material chosen to read for both entertainment and deliberate knowledge, interesting hobbies, type of sports played and any other aspect of life all combine and form a base of knowledge that impact problem solving skills. Regardless of the origin, these experiences make each person, including administrators, unique individuals. When making everyday decisions administrators rely, although it may be an unconscious reliance, upon these experiences.

Studies have been done to determine expertise patterns for physicists, nurses, doctors, athletes, magistrates, musicians, chess players and college professors (Finnegan & Hyle, 1998). However, there has been little research on the cognitive process educational administrators use to arrive at solutions for problems they encounter and thus display "expertise."

Statement of the Problem

Despite the same years of experience, administrators focus on problems differently and work to resolve them differently. Bereiter and Scardamalia (1993) explain this variance in terms of the typology of hidden expert knowledge specifically, informal, impressionistic and self-regulating expert knowledge.

Purpose of the Study

The general purpose of this study is to explore the problem solving expertise of school administrators. Multifaceted tasks are needed to achieve this purpose:

1. First is an examination of the problem solving strategies, of current building level administrators.
2. Adapting the research of Bereiter and Scardamalia as presented in *An Inquiry into the Nature and Implications of Expertise* (1993) and adding to their concepts of informal, impressionistic and self-regulating knowledge, the second purpose is to determine the skill level in problem solving expertise of building level administrators using a topology of expertise consisting of three categories: Novice, Post-novice, or Expert.
3. The third purpose of this study is an assessment of the usefulness of the professional expertise scale, "The Baker/Bottoms "Characteristics of Administrative Expertise" topology, designed for use in this study as a rating device for the degrees of informal, impressionistic and self-regulating knowledge possessed by building level administrators.
4. The fourth and final purpose is to describe other realities revealed while conducting the research.

Orienting Theoretical Frame

Building level administrators must posses certain knowledge in order to function in their capacity as principal or assistant principal. This knowledge can come from many sources such as coursework, school policy or practical life knowledge. The assumption is that all building level administrators have this knowledge base. Presumably, administrators have come from a background that includes classroom experience.

Additionally, administrators have had course-work and enough hands-on experience to actually know how schools operate and are funded. Interpersonal skills in administrators have been developed to a point where effective communication with the public takes place. In addition, Bereiter and Scardamalia (1993) define and describe three types of hidden expert knowledge. Specifically, these hidden expert knowledges are informal, impressionistic, and self-regulating knowledge.

Discussing informal knowledge, Bereiter and Scardamalia (p. 54) say that it is "much more highly developed [in experts] and usually more heavily influenced by formal knowledge". They also tell us that experts tend to perceive problems in a more logical manner than novices do. Experts tend to solve problems more readily.

Bereiter and Scardamalia tell us that impressionistic knowledge is "the distillation of experience, dominated by a few salient events" (p. 46). To further evidence their point they say, "what goes by the name of intuition, an attribute ascribed to brilliant researchers, designers, and trouble-shooters, usually amounts to a strong impression that something is interesting, promising, or amiss" (p. 56).

Discussing and describing the third area of hidden knowledge, self-regulating knowledge, Bereiter and Scardamalia tell us it is "knowing how to manage oneself" and "regulating anxiety and concentration" (p. 60).

Administrators participating in this study will be asked to respond to open ended questions about methods of problem solving and be given the opportunity to describe steps they would take in a hypothetical problem-solving challenge. Their responses will be coded and assigned a rank in one of three levels, Novice, Post-Novice, or Expert, in each of these three types of hidden expert knowledge that Bereiter and Scardamalia

(1993) describe. Table 1 shows the determination for the operationalization of this representation for this study.

Table 1

Baker/Bottoms Characteristics of Administrative Expertise Topology

	Informal Knowledge *The sum of life knowledge composed of life experiences, coursework, etc.*	Impressionistic Knowledge *Intuition gained from the knowledge of past experiences*	Self-regulating Knowledge *One's knowledge of performance requirements and the management of that knowledge.*
Level 1	• Gains knowledge from reading in specialty area • Draws from graduate coursework • Draws from teaching experience • Draws from informal knowledge of colleagues	• From informal knowledge acquired in experience sees intriguing questions to ask of original data • Often sees literature as inadequate of decision -making • Offers new approach to ideas	• Attempting to manage stress • Juggling multiple demands • Uses time management • Legitimacy issues - ✓ Sees self in role ✓ Professional visibility ✓ Learning self-critique techniques.
Level 2	• Draws from past experiences • Relies on input from others, colleagues, faculty • Combining informal knowledge with new knowledge (research) to form new higher level of informal knowledge.	• Sees innovative opportunity within new areas • Perceives broader questions or applications.	• Acquires new formal knowledge by choice • Accepts problem solving challenge without reservation • Less legitimacy anxiety, so formal focus increases. • Develops professional networks.
Level 3	• Informal knowledge that cuts across the spectrum of administration • Broadening interest in educational issues • Informal is synthetic/applied	• Sees the need to draw insights together • Synthesizes information to create a solution for a problem	• In control of professional life • Can delegate responsibility • Can take on leadership with confidence • Content and confident with professional life

Procedures

This qualitative study was an examination of the responses made by 8 building level administrators in problem-solving roles from questions posed during personal interviews. The responses determined their level of problem solving expertise as it relates to questions about the topic of raising the Academic Performance Index score after being placed on the "low performing school" list. Their expertise level was then determined by mapping key words, phrases and attitudes from their responses and discussions on an expertise topology. An assignment was then made giving them an overall rating of their level of expertise in problem solving skills as revealed by their responses to the questions.

The Researcher

I am an Oklahoman by birth and now by choice. I grew up in southern Oklahoma, the eldest son of an oil field worker and Methodist minister. When I entered junior high school, my father became a full time minister and left the oil field. From there, our family moved regularly. I have had the pleasure of living in all parts of Oklahoma, North, East, South, West and the panhandle.

While living in the eastern part of the state, I graduated high school in Fort Gibson and began my college career before the last name change at Northeastern State College. I graduated with a Bachelor's degree in Math Education, and Elementary Education. It was while attending there that I met my wife of 32 years, Mavis Lynne

Jones. After graduation, we made our first home in Pineville, Missouri. I taught middle school level students math and science in Anderson part of the McDonald County School System.

We moved back to Northeastern Oklahoma and I began a long career as a secondary math teacher in Wagoner, Oklahoma. I returned to Northeastern State University and graduated with a Master of Counseling degree. Eventually, I was employed as a counselor with Wagoner High School and served in that capacity from 1988 to 1999. During this time I began the pursuit of a Specialist of Education degree from Oklahoma State University. I was granted that honor in 1997. I continued my education at Oklahoma State University pursuing an Educational Doctorate degree.

In 1999, my wife and I accepted positions in education at Plainview Elementary School, the smallest school district in the state in terms of students. I was the Superintendent and had a dual role of building principal. I served in that role until I returned to the area of northeastern Oklahoma and continued my formal education continuing the pursuit of the Educational Doctorial degree.

The role of the educational administrator is ever changing. This was my experience in education. Since I began to work with students in 1973, I have worked with students from all grade levels. This experience has taken me through stages in which I was employed as a teacher, a counselor and as a principal/superintendent. This journey has also taken me through schools of various sizes ranging from the very smallest district in Oklahoma to a very large school district. I have been involved in both elementary and secondary systems in two states, Oklahoma and Missouri.

As my career progressed, I found myself in problem solving roles while performing the various duties that were assigned to me. I know from experience the difficulty each administrator faces in the day-to-day operation of a school. This experience will give me an advantage in doing this research.

After almost 30 years in education, although I substitute on a part time basis, I am retired from the full-time day-to-day education of students. I am using this retirement to finish my education. From here I will find another career path or take up a similar path in education in a nearby state.

Data Needs and Sources

Data needed for this study was comprised of responses to open ended questions about problem solving methods of current building level administrators. Building level administrators from school districts of varying sizes were interviewed. Each administrator interviewed was certified in the State of Oklahoma and meet or exceed the minimum requirements for that certification. While some only held a Master's degree plus any additional hours they needed for certification, one other held an additional degree. The various differences in backgrounds such as years in the classroom, additional college hours, and family history of education, etc., was sought by sending a preliminary questionnaire with the letter seeking permission for the interview. This occurred after a telephone solicitation. Building level administrators were project subjects to eliminate possible bias on my part. I have not held a position with the title of principal.

Permission was sought from the Institutional Review Board to allow human subjects to be used in this research project. A copy of the approval is provided in Appendix D of this paper. Confidentiality of the sources and their discussions during the interviews were honored and respected at all times.

Data Collection

Data was gathered using the long interview process described by McCracken (1988). These long interviews were audio recorded and were in a duration of approximately one hour in length. Interviews were conducted using a semi-structured open-ended question format. Considerable care was taken to conduct the interviews in a place chosen by the respondent and interviews were conducted during non-paid hours according to the respondents. By choosing the location for the interview, it was hoped that the respondents felt more at ease and not threatened by the interview process. The interview questions focused on job description, methods, problem solving, and educational philosophy of public school administrators. An additional discussion of the process used to solve problems was posed by hypothetical questions such as one dealing with raising the Academic Performance Index (API) for a school that has been placed on the "low performance list" as compiled by the Oklahoma State Department of Education. Their responses were incorporated into the data. The approach was to encourage the oral discussion of all process and thoughts regarding the process used to arrive at a solution. (Appendix B contains the interview protocol.)

Demographics of where each of the respondents was in their professional life was obtained by getting descriptive, chronological, and as necessary, background information.

This information was obtained from each of the building level administrators interviewed. This information included gender and years of experience, both in the educational setting as a classroom teacher or counselor, and in previous administrative experience. It also included degrees held, previous administrative positions and the number of years in their current position.

Data Analysis

Data analysis was conducted by coding the responses to questions and free speech from the transcription of the building level administrators. Patterns and key words were sought to help the researcher place the responses to the dialogue and the open-ended interview questions in the categories of hidden expert knowledge outlined by Bereiter and Scardamalia (1993) and adapted in the Baker/Bottoms "Characteristics of Administrative Expertise" topology. Once this information was compiled and coded, the building level administrators' responses were placed in categories that define a level of expertise. A determination was then sought for overall characteristics that define expertise in building level administrators.

Significance of the Study

Professionals should be ever mindful of improving their performance in their current position. The lack of a body of research detailing how administrators develop expertise impedes administrators in their attempts to improve their skills. Impediments

also exist for administrator training and preparation programs. This leaves only a trial-and-error process, which is a difficult procedure, at best, for the young, less experienced administrators to gain necessary skills.

By recording and analyzing the problem solving process as verbalized in the responses of school building level administrators, a picture emerged that further expanded the knowledge base of expertise and helped to clarify the theory of expertise. School administrators possess and utilize their expertise on a daily basis. However, very little research has been specifically directed toward the understanding of administrative expertise as a purpose.

Research

A purpose of this study was to expand the body of research available on administrative expertise and determine how these expertise skills were gained. It was also a hope that administrators could strengthen their problem-solving skills by utilizing the results of this study. The painful process of growth for young and inexperienced administrators will still exist, but this study and others like it may shorten the time necessary for novice administrators to obtain the skills to become effective school leaders and proficient problem solvers.

> The research on expertise considers and analyzes the work methods of specialist, those who have attained the highest levels of performance, whether it is in the playing of chess, mountain climbing, magisterial decision making, or medical diagnostics. In addition to these analyses, experts have been contrasted

> with novices, revealing a vast chasm. Recognizing this gap, however, does not explain how a novice becomes an expert. (Finnegan & Hyle, 1999, p. 9)

"Virtually all research that has been done compares experts with many years of experience with novices who have very little experience" (Bereiter & Scardamalia, 1993, p. ix)." Rather than just compare, this study hopes to help determine how a novice becomes an expert, fill the void with additional levels of expertise and, thus, speed up the process for the novice administrator. Because of the lack of research specific to the topic of school administrators, this research, and other research like it, is even more important.

As these young or inexperienced administrators gain employment, it could also mean a struggle in the school system in which they work and for the faculty members they lead. Change always brings new realities to the forefront but administrator growth and self-improvement can be accomplished by formal acquisition of knowledge from current literature and practice. This study added to the current, limited body of available research on this topic.

Practice

The development of administrators' expertise in the problem solving process deserves examination for two significant reasons. First, the ability of responsible groups such as hiring committees, building level administrators and boards of education to have best hiring practices. The ability of responsible groups to recognize expertise now depends upon referral from programs designed for the development of administrators who possess levels of expertise adequate for entry-level positions. Long-time

administrators could be retiring and they are being replaced with younger and sometimes more inexperienced administrators. Seventy-five percent of all superintendents and half of all principals will reach retirement age by 1994 (Hess, 1988). Since this reporting, indeed, many administrators have begun to retire and leave their positions vacant to be filled with those younger and possibility less experienced educators. Because of these facts, the second significant reason is program development. It should be especially important for institutions of higher learning where traditional programs for the development of administrators and problem solvers. Many states such as California (Birch, 2000) and Missouri (Beem, 2002) are requiring a more stringent program of study and pre-licensing testing in order to gain administrative credentials. Anthony J. Lease (2002) writes of graduate students who have the knowledge based on administrative coursework but "lack the depth of experience" necessary to form a philosophy as an educational leader that the "heavy workplace-embedded experience" and "hands-on experiences" would bring to the teaching/learning process.

Programs in higher education designed for administrator education can use information gained through the research on expertise to further the expert-like practices in individuals who aspire to become public school administrators. However, expertise cannot be measured like sporting events with absolute units of time. An accurate measurement of expertise in problem solving cannot currently be made (Ericsson, 1996). Research such as this that delves into expertise can have a profound effect on the knowledge base for both measurement of expertise and in teaching problem solving expertise which could result in beneficial expert-like behavior of public school administrators.

Teachers, coaches and staff make decisions are that affect a single student or a group or class of students. Decisions made in problem solving by an administrator have the potential to affect the body of students or the whole community.

Summary

The anticipated administrator shortage nationally and resulting need for school administrators with appropriate levels of expertise to fulfill their responsibilities serve as the focus on this examination of administrator expertise. Using the orienting framework of Bereiter and Scardamalia (1993), this study hoped to provide topical research where at present little exists. The qualitative long interview will serve as the primary data collection strategy. Building level administrators will be the data sources. Data will be analyzed through the Bereiter and Scardamalia (1993) lens of hidden expert knowledge. Other realities of administrator expertise will also be presented.

Reporting

The second chapter will discuss literature available on the subject of expertise, problem solving, and the three areas of hidden knowledge, informal knowledge, impressionistic knowledge and self-regulating knowledge. Although there is a limited amount of literature that deals directly with expertise of public school administrators, supporting research can be discussed and woven into the expertise research attempted by this study. The third chapter is the presentation of the collected data, which is followed

by an analysis of that data then presented in the fourth chapter. The fifth and final chapter will present my findings, a discussion of those findings, and a commentary with conclusions and recommendations for further study, should any be necessary.

CHAPTER II

Review of the Literature

Chapter II is a review of the literature detailing administrator problem solving, hidden expert knowledge and Bereiter and Scardamalia's (1993) topology of expertise. Other factors hindering the development of expert self-regulating knowledge are explored and a history of expertise is presented.

Problem-Solving

Problem solving is a fundamental aspect of any school administrator's job. An administrator's performance in these areas is judged by all as a major part of his or her expertise in the education field. The ability to make decisions that impact in a positive manner as many people as possible is, therefore, a major aspect of an administrator's formal and perceived expertise and is then projected into any evaluation conducted by public and private opinion.

Researchers with interests ranging from industry to education have studied the problem-solving process. From this research, "steps" have been identified that problem solvers take in reaching a solution. Tomal (1999) refers to the process as "action research" which he defines as "a systematic process for studying educational problems in

a way that leads to substantive improvements (p. 1)." His steps to reaching adequate conclusions of problems mirror the research results of others, specifically, 1) initial diagnosis, 2) data collection, 3) analysis and feedback, 4) action planning, 5) implementation, and 6) follow up.

Leithwood, Steinbach and Raun (1993) look at the problem-solving process from the framework of information-processing theory as did Newell and Simon (1972). In this model, the components of problem solving are: 1) interpretation, 2) goals, 3) principles and values, 4) constraints, 5) solution processes and 6) moods. It is their belief that problems exist as a gap between an individual's perception of the current state of affairs and that individual's perception of the more desirable state of affairs. "When both states are clearly known and the procedures to follow to get from one (state) to the other are also known, a problem is considered routine or well structured" (Leithwood et al., 1993, p. 366). Newell and Simon (1972) define the behaviors associated with problem-solving, both overt and those occurring within the thinking, as the "problem space". They contend that a problem is well defined if there is a test to check to see if the proposed solution is really an adequate solution. Leithwood et al. (1993), also contend that a solution is based on the expertise of the problem-solver and therefore "if the solver thinks the problem is ill structured, it is (ill-structured)" (p. 366). Hence, a novice would have the perception that the problem is more difficult to solve while the experienced expert might find that the problem is routine.

> Information-processing orientations to problem solving devote considerable attention to the concept of expertise and the patterns of thought that distinguish between those who possess high levels of expertise and others.... General

> problem-solving processes in the absence of knowledge … are not considered powerful tools for problem-solving.... Well-structured problems, usually those repeatedly encountered by expert administrators, are solved with little conscious thought. (Leithwood et at., 1993, pp. 366-367)

Leithwood et al., (1993) contend that there are two general categories of processes involved in problem solving. Those processes are understanding and solving.

> Understanding processes serve the purpose of generating an administrator's internal representation of the problem or what he or she believes the problem to be. Solving processes aim to reduce the gap between current and desired states -- how the administrator will transform the current state into the more desirable goal state (p. 367).

Leithwood et al., (1993) further suggest that expert administrators when compared with novice administrators: 1) develop a relatively clear understanding of a problem before attempting a solution, 2) devote more time in the initial formulation of ill-structured problems and 3) are more inclined to view the problem in its relationship to the broader mission of the organization.

Further suggestions are that expert administrators more adequately anticipate many of the constraints likely to arise during problem-solving, show a greater tendency to plan for those constraints, respond more flexibly to constraints that arise unexpectedly and do not view constraints as major impediments to problem-solving. In short, experts: have well-developed plans that provide a clear, detailed introduction to the problem; outline clearly the process for problem-solving; check collaborators' interpretations and indicate their own view of the problem; remain open to new information; have a strategy

for balancing the need to keep focused and allowing discussion; ensure a follow-up plan; and use more problem-relevant knowledge in problem-solving (Leithwood et al., 1993).

Summary

Problem-solving research has deep and varied roots in the social sciences. Because humans are complex and personalities vary, problem solving is a complex and personal endeavor. It is, therefore, very difficult to study and research produces non-concrete results. Problem solving involves thought processes using past experience and relevant knowledge. Although solutions are personal, there are steps that problem-solvers use in coming to an adequate resolution of discrepancies between the desired state and the current state of a situation needing to be solved. Those steps are: 1): initial diagnosis of the current state and the desired state, 2) data collection using previous experience, knowledge and research, 3) analysis of the problem and feedback from collaborators, 4) planning for an acceptable solution, 5) implementation of the plan, and 6) follow up after the plan has been implemented.

History of Expertise

> None of our men are 'experts.' We have most unfortunately found it necessary to get rid of a man as soon as he thinks himself an expert because no one ever considers himself expert if he really knows his job. A man who knows a job sees so much more to be done than he has done, that he is always pressing forward and

> never gives up an instant of thought to how good and how efficient he is. Thinking always ahead, thinking always of trying to do more, brings a state of mind in which nothing is impossible. The moment one gets into the 'expert' state of mind a great number of things become impossible (Henry Ford, 1922, p. 86).

Many reference sources (i.e. The American Heritage Dictionary, 2000, Webster's Dictionary, 1996, Princeton University WordNet, 1997) all agree that the definition of expert contains "knowledge and experience." Indeed, the origin of the word expert is from Old French for *experienced* or from the Latin *expertus* which means *to try* (American Heritage Dictionary, 2000).

Expert behavior and expertise are acknowledged as traits in individual humans and have been so acknowledged for many centuries. Mention Robin Hood, for example, and people will say he was an expert marksman. This is the common conception of expert behavior. These traits or skills are observable and largely measurable. It is only natural then, that research into expertise began with measuring the skill level of expert individuals. De Groot (1965) studied chess champions, Ericsson et al., (1993) studied "deliberate practice" and Richman et al., (1996) broadened the research scope to include experienced professionals such as practicing attorneys, engineers and medical doctors. In the 1960's, academic psychology began to examine the complicated and extensive underlying cognitive activity that accompanies even the simplest tasks (Chipman, et al., 2000). From this research, both techniques and theories have developed for characterizing knowledge that an individual possesses, which he or she may not even be aware. Evolution from that natural beginning is now called expertise research. Mieg

(2001, p. 2) tells us that the definition of an expert is someone who "know[s] from active, reflective experience."

The definitive starting point of cognitive psychology research into expertise is Newell and Simon's 1972 publication of *Human problem solving*. They studied the information processing of chess masters using computer programs. Ericsson and Smith (1991, p 2) sharpened the research objective for expertise when he wrote,

> the study of expertise seeks to understand and account for what distinguishes outstanding individuals in a domain from less outstanding individuals in that domain, as well as from people in general.

Measurement of expertise in tasks that professionals undertake generally involves decision-making and the underlying problem-solving techniques (Kahneman, 1991).

There has been very little research on expertise and the problem-solving process (Finnegan & Hyle, 1998), especially as it relates to educational administration. Much of the research into educational expertise is conducted to improve student learning and retention (Friedman & Shore, 2000) or is research dealing with the transference of knowledge in the workplace (Hansen, 1999).

Instinctively then, expertise comes with experience and with the implicit knowledge of the domain (Polanyi, 1966). A robust finding of studies of experts is that, as expertise increases, mental representations become more abstract (Gitomer, 1988; Chi, Glaser, & Rees, 1982). These and other studies (Ceci & Liker, 1986: Chase & Simon, 1973; Gobet & Simon, 1998; Johnson, 1988; Lambert & Newsome, 1989; McKeithen, Reitman, Rueter, & Hirtle, 1981) suggest that experts encode and process information in a more conceptually abstract manner than those with less expertise. This leads to the

conclusion that experts have not only gained more knowledge within a domain but have, in general, gained more advanced knowledge than their novice counterparts.

In support of this concept, Bereiter and Scardamalia (1993) defined three types of hidden knowledge, greatly possessed by experts, which are applied to all areas in which expert-like knowledge can be demonstrated, including educational administrative expertise. These types of hidden knowledges are informal knowledge, impressionistic knowledge and self-regulating knowledge.

Hidden Expert Knowledge and Building Level Administrators

When building supervisors are hired for their positions, the hiring authority expects them to come to the job with a standard set of knowledges. Although those sets of knowledges are undefined, these administrators are expected to accomplish the goals of the school while balancing the needs of the students, the faculty and community. This must be accomplished within guidelines established by legal concerns and board policy within the financial constraints established for the school. To be successful, the building level administrator must rely on knowledge that is referred to as common sense (a part of informal knowledge) but also must possess informal knowledge gained from other sources. This informal knowledge of the domain for entry-level administrators can be gained from a variety of places, most notably, administrator graduate course work and training programs. "Principals' knowledge, skills, and values develop over time. A new principal, fresh out of graduate school, is different from a principal with 30 years of experience in multiple school settings (Hausman, Crow & Sperry, 2000)".

Bereiter and Scardamalia (1993) surmise that while an administrator or other professional is engaged in practice he continues to grow developmentally in areas of domain knowledge. So, as an individual's professional growth continues, so does the growth of his hidden expert knowledge. As the growth of the hidden expert knowledge continues so does the expertise of the individual continue to increase.

The growth of hidden knowledge is not constant and can be enhanced or hindered. Experiences that enhance hidden knowledge growth are those events salient to the individual – events that leave lasting impressions, both positive and negative. Hindering the growth of hidden knowledge is individual and depends of factors such as the individual's ability to manage and overcome issues regarding self-development. These issues come with stress, lack of confidence or self-worth. All knowledge plays an important role in problem solving, including hidden knowledges. The following pages conceptualize the types of hidden knowledge as presented on the Baker/Bottoms "Characteristics of Administrative Expertise" topology.

Informal Knowledge

Informal knowledge is defined in the Baker/Bottoms "Characteristics of Administrative Expertise" topology as the sum of life knowledge drawn from life experiences, course work, etc. Because we are all individuals, we have different experiences to draw knowledge from. Due to differences in personality or leadership style, we also experience events differently than other administrators. We all know that when a tennis ball is dropped it will bounce. We know further that how high it bounces is

dependent on factors such as the height from which it is dropped, the surface it lands on, and the condition of the tennis ball. Bereiter and Scardamalia (1993) refer to this kind of knowledge as informal knowledge and it is gained from past experiences. The degree to which informal knowledge is more highly developed and influenced by formal knowledge is one of the differences in the expertise possessed by an individual (Bereiter et al., 1993). A novice may be able to take informal knowledge gained from past experiences and use it to solve a problem. An expert, however, is able to synthesize this informal knowledge with their acquired formal knowledge base to form yet a higher level of informal knowledge that they can apply when solving more difficult problems.

Mieg (2001) refers to this type of "informal" knowledge as domain specific knowledge and calls it "local knowledge." Local knowledge takes the form of knowledge gained in a very specific domain. An exterminator may have a great deal of knowledge (both acquired and hidden) in dealing with pest control. That same person, however, may not be able to manage a cattle ranch. Although these examples may seem to be polar opposites, they have commonalities. Both are businesses that must have cash flow in order for the manager and the business to survive. Both examples call for managers who can deal with and get along with people, albeit staff, customers and others. Mieg (2001) defines informal knowledge as "general knowledge insofar as it can be applied to several fields" (p. 147). With these definitions in mind, it is easy to see that someone who works at a certain activity for an extended period can become very knowledgeable about all aspects of that activity. Mieg would argue that instead of acquiring expertise the individual has acquired a great deal of local knowledge.

Life experience develops "informal" and "local knowledge" to varying degrees in each individual. Someone who enters the field of education from a family of educators may be more likely to have a higher informal knowledge concept of school systems, school interactions and school politics than someone who enters from a non-education family and whose only experience with school was the experience gained as a student.

Informal knowledge, including domain specific knowledge, is important in problem solving and in the measurement of expertise. Hinds, Patterson and Pfeffer (2001) tell us, "Novices frequently attend to irrelevant information involving problems" (p. 1235). They suggest that when a novice acquires conceptual knowledge it increases his ability to determine what information is valuable and necessary in problem solving situations and which information is not useful, thus making them more effective at the problem-solving task.

The sum of one's life experiences for educational administrators includes much course work. Included is course work from the classes that are required of all degree seeking administrators. Any courses that were chosen as electives to the degree program also build the informal knowledge but does so in a differentiating manner. When drawing from informal knowledge for problem solving, a novice may rely more heavily on the course work than the expert. In becoming an expert, the informal knowledge from experience has been blended with the formal knowledge gained in the graduate education classes with the knowledge from real-life situations.

Summary. All individuals possess informal knowledge. It is this informal knowledge that is the sum of life knowledge, composed of life experiences, course work,

etc., that individuals rely on in their day-to-day process of carrying on a normal life. As individuals are varied, so is the informal knowledge they possess. As administrators grow in their roles, continue taking courses, and learn from their mistakes, their informal knowledge grows accordingly. Expert administrators have an informal knowledge base that allows them to see problems from a variety of viewpoints, and thus allows them to work out productive solutions.

Impressionistic Knowledge

Impressionistic knowledge is the knowledge that is connected to feelings or to values and mood. Values are enduring beliefs about the desirability of an action and become a standard for guiding thoughts and actions. Leithwood et al. (1993) compiled 17 specific values used by academic educators into four classifications. These classifications are: 1) human value (happiness), 2) moral value (honesty), 3) professional value (role responsibility) and 4) social value (helping others). They contend that experts when compared to novices are more aware of their values and use them regularly in problem solving, especially the ill-structured problems.

Since knowledge is stored in the mind in multiple forms, such as in words and in pictures, it has associated feelings stored with it. This is mood. Experts when compared to novices are better able to control intense moods and remain calm while problem solving. Further, experts are more reflective about thoughts and behaviors. (Leithwood et al., 1993)

Administrative experts can make decisions in a more rapid manner than novices. This may be because of what we call impressionistic knowledge. The impressionistic knowledge of these experts plays a considerable part in what we often describe as "intuition". Bereiter and Scardamalia (1993) agree with this and state, "The full repertoire of expert knowledge may later be brought into play, but the first move is likely to be on the basis of some impression not tied to any particular item of prior knowledge (p. 58). Expert administrators make preliminary decisions quickly. This allows them extra time to investigate possible long-term solutions for the problem. Sergiovanni and Starrett (1996) would agree with this assessment and call this intuition a "hunch":

> ...rarely does teaching or supervisory practice emerge from other practice. Instead, hunches are at play and operating principles emerge as theories of practice that provide a more rational basis for what one does. Typically, hunches and operating principles are implicit, and when they are explicit they are not thought about systematically. The question...is...what are the theories (the implicit hunches and operating principles) that help shape the way they see their professional world and provide the basis for professional decisions and practice.

Presented below is a diagram of this sequence:

Practices → Hunches → Theories of Practice → Principles → Practices (p.6).

There are reports of many now-famous businessmen, who played their successful hunches. A professor gave a "C" to the paper a student wrote about an overnight delivery service that guaranteed next-day delivery. That student, Fred Smith, is now the founder of the company called FedEx. Howard Schultz just had a hunch that Americans would pay $3 for coffee-and-conversation. He was the founder of Star Bucks, a very successful

coffee-shop chain. These men and others like them had something in common – intuition (Stewart, 2002). Intuition is a form of impressionistic knowledge, just as the hunches described above. This knowledge, although present in all individuals, is more highly developed in individuals that others deem an expert. Impressionistic knowledge is also one of the hidden areas of expert knowledge described by Bereiter and Scardamalia (1993). The following passage demonstrates the importance of impressionistic knowledge.

The marines learned that in situations of that are chaotic or complex, simulating conditions in war, that intuition or instinct made the best decision-makers. Firefighters function with much the same rational while fighting a fire. Stewart (2002) tells us that the Marine Corps' official doctrine reads, "The intuitive approach is more appropriate for the vast majority of … decisions made in the fluid, rapidly changing conditions of war when time and uncertainty are critical factors, creativity is a desirable trait."

Thus, impressionistic knowledge, in the form of intuition, plays a major role in problem solving in many areas of human behavior. Extrapolations could be made for any situation where instinct plays a dramatic role, such as in human survival.

Impressionistic knowledge then is formed by and parallel to the informal knowledge possessed by an individual. It is improved with each article read, with each incident in life and work and by feelings fostered by these life experiences. Building level administrators can greatly improve their informal knowledge and impressionistic knowledge by reading subject area material and then reflecting upon the feelings. Reflection is important in building impressionistic knowledge. Self-awareness means to know one's emotions, needs, values, beliefs, strengths, and limitations. Not only do

effective principals know themselves but also they are true to themselves, and reflection is an important aspect of this being (Hausman, et al. 2000).

Summary. Impressionistic knowledge plays an important role in problem-solving. It can be developed along with informal knowledge and, as expertise grows, so does impressionistic knowledge. Individuals deemed as experts in specific domains exhibit expert-like tendencies that not only include a great deal of informal knowledge across a broad range of subjects but also possess advanced impressionistic knowledge.

Self-Regulating Knowledge

Bereiter and Scardmalia (1993) describe self-regulating knowledge as the ability to manage one's self to meet one's goals. The Baker-Bottoms "Characteristics of Administrative Expertise" topology measures an individual's ability for self-regulation and the overcoming of obstacles that hinder the growth of this self-regulating knowledge. This area of hidden knowledge continues as one used to determine expertise.

> Self-regulating knowledge refers to an individual's knowledge of what is required of them to operate at an expert level. It is not the self-regulating behavior itself. Possessing the knowledge or knowing what is necessary and acting on that knowledge are very different things (Finnegan, et al. 1998, p. 16).

Many factors affect the development of self-regulating knowledge. These factors can include stress, juggling multiple demands, lack of time management skills and professional legitimacy issues. Expert administrators have mastered these factors and

have developed methods to cope with each. The novice administrator in the self-regulating knowledge area is attempting to manage stress, juggle multiple demands and beginning to use time management skills. The novice also has legitimacy issues that include: seeing themselves in their current role, having visibility as a professional, and beginning techniques in self-critique and reflection.

Stress Management

Stress management is a serious issue for building level administrators with the demands placed on them today. Stressful situations occur when unfamiliar interactions take place between staff members, community members or students – a daily occurrence in the life of a principal. Stressful situations of this type can reduce the principal's ability to be an effective problem-solver. Susan Clark (2001) relates a story about a principal who was overwhelmed with the daily duties of the principalship. Essentially, the principal lacked the skill to manage the duties of discipline and evaluation.

> In 30 seconds, he was sobbing. So I held his hand and cried with him as he sobbed for several minutes. Finally, he took off his glasses and wiped his eyes like a little child. Looking at me he said through his sobs, "I want to do a good job, but I don't know what to do. They don't teach you what to do in school. I never knew it would be like this" (Clark, 2001).

The role of the principal is becoming more complex with the demands placed on them by system administrators, state department regulations and stakeholders. "The work of the secondary principal is complex and overwhelming. Activities in which principals

engage and the amount of time allocated to each activity clearly asserts this assertion" (Cooley & Shen, 2003, p. 21).

In fact, some believe that the job of building level administrator is becoming to complex and in many ways is one that cannot be accomplished with success. "It seems that various stakeholders have created expectations for the position that are unrealistic. People are reluctant to aspire to a position that sounds impossible to perform (DiPaola & Tschannen-Moran, 2003, p. 46)."

Building level administrators deal with daily conflicts from students, teachers, parents, and supervisors. They inevitably must make decisions that affect others, and must often resolve, "conflicts between individuals--i.e. student and student, student and teacher, teacher and teacher, teacher and parent, teacher and assistant principal, teacher and central office supervisor" (Lyons, 1990, p. 44), as well as any issues arising between themselves and any of these people.

By some reports, secondary school principals have an average of 1,000 interactions in a single day (Lyons, 1990). These "on the spot" interactions are often questions that the principal is expected to give an "on the spot" answer or decision to (Morris, Crowson, Porter-Gehrie, & Hurwitz, 1984).

In addition, as the instructional leaders of their school, building level administrators spend a great deal of their time working with supervisors and subordinates in an effort to improve the school's performance. While doing this, they spend time in meetings with various groups such as departmental groups or individual teachers, parents, students or supervisors (Williamson & Campbell, 1987).

With all of these increased duties, building level administrators' workweeks are getting longer. Because of the many school activities that are necessary in today's schools it is not unusual for a building level administrator to arrive at work early and end the day late in the evening when the activity comes to an end.

One survey reported that over 95% of high school principals claimed to work in excess of 50 hours a week (Boothe, Bradley, Flick, Keogh, & Kirk, 1994). With an increased workload as well as these increased hours, building level administrators and administrators in general, are bound to begin to feel the stresses of their position.

Summary. Self-regulating knowledge is the awareness of how to manage one's life activities with meeting goals in mind. Events uncontrollable to individuals play a part in developing or hindering the development of this hidden knowledge. The ability of a building level administrator to cope with and manage these events is salient in the quest for professional success. The ability to manage these events, therefore, is an indicator of expertise as measured on the Baker/Bottoms "Characteristics of Administrative Expertise" topology.

Chapter Summary

All individuals possess hidden knowledge. This knowledge is gained from a life time of experiences through interactions the individual carries on with others, the environment and with the emotions associated with these experiences. One knowledge an individual has gained from these experiences is informal knowledge. Informal knowledge

is defined by Baker and Bottoms on their "Characteristics of Administrative Expertise" topology as "the sum of life knowledge composed of life experiences, coursework, etc." It is the knowledge that is "left behind" by course work and other learning events.

Another kind of knowledge is what an individual develops from emotions, feelings and intuition during the duration of a lifetime of individual interactions. This knowledge is defined by Baker and Bottoms on their "Characteristics of Administrative Expertise" topology as "intuition gained from the knowledge of past experiences."

The final knowledge an individual develops from within themselves is called self-regulating knowledge. Baker and Bottoms on their "Characteristics of Administrative Expertise" topology define it as "one's knowledge of performance requirements and the management of that knowledge".

Each knowledge is hidden. This means that individuals function using this knowledge without conscious realization that they even possess it. It is these knowledges that the topology "Characteristics of Administrative Expertise" developed by Baker and Bottoms are comparing to rank individuals and determine levels of hidden expertise.

CHAPTER III

Methods and Presentation of the Data

This chapter presents the outline of the data collection procedures. Further, it describes the subjects that participated in interviews, and presents the collected data from the subjects interviewed.

Long Interview Procedures

The goal of this research was to examine the problem-solving expertise of building level administrators by examining their problem solving skills. Using the work of Bereiter and Scardamalia (1993) and building on their notions of informal, impressionistic and self-regulating knowledge, another purpose was to determine the skill level in problem solving expertise of building level administrators using a topology of expertise consisting of three categories: Novice, Post-novice, or Expert. A third purpose of the study presented here was an assessment of the usefulness of the professional expertise topology, designed for use in this study, as an aid in rating the degrees of informal, impressionistic and self-regulating knowledge possessed by building level administrators. The final goal of this study was to describe any other realities revealed during the progression of this research.

Achievement of this agenda falls into the qualitative realm which "is to isolate and define categories as precisely as possible before the study is undertaken, and then to determine, again with great precision, the relationship between them (McCracken, 1988, p. 16). The long interview, according to McCracken (1988),

> ...departs from the unstructured "ethnographic" interview insofar as it adopts a deliberately more efficient and less obtrusive format. It is a sharply focused, rapid, highly intensive interview process that seeks to diminish the indeterminacy and redundancy that attends more unstructured research processes.... In other words, the long interview is designed to give the investigator a highly efficient, productive, "stream-lined" instrument of inquiry. (p.7)

The interviews were conducted with the four-step method of inquiry proposed by McCracken (1988). These steps, displayed in a circle divided into quadrants, represent separate and successive steps in the research process and further divide the method in directions. The up-down direction separates the domains of analytic data and cultural data. The left-right direction separates the two domains of review processes and discovery processes.

The first step is a review of the literature. This review allowed me as a researcher to define problems more precisely and to assess data from the concepts of this sharpened focus. The review allowed me to better handle unexpected data gathered during the interview. Further, a common purpose of construction and design of the interview questions is served. However, this review should not spoil my viewpoint with such a strong preconceived idea that the interview is not conducted in an analytical manner (McCracken, 1988).

I began with a review of the literature and a looked at expertise research history. Although expertise has existed and has been recognized throughout human history, it is only within the last few decades that it has begun to be studied in earnest. Therefore, a limited amount of data exists on expertise, further there were no definitive conclusions on the creation of expertise or on its measurement.

One theory that I found central to any investigation into expertise is the three areas of hidden expert knowledge analyzed by Bereiter and Scardamalia (1993). These three areas of hidden expert knowledges are informal, impressionistic, and self-regulating knowledges. The research represented by this study took the concept of the hidden expert knowledges and narrowed its application and measurement potential to public school administrative expertise as it relates to public school building level administrators.

Then a review of the cultural categories was conducted and interview design was considered. The purpose of cultural review is three-fold. First, is in use to prepare the questionnaire, second, is in preparation for data gathering, without regard to the intimacy of the subject by the interviewer, and third is in establishing the psychological distance that separates the researcher and the subject being interviewed (McCracken, 1988).

Examining my culture, I found that it would be essential to restrict the study to a specific group of respondents. In this case, limiting the study to building level administrators keeps this researcher away from total intimacy with the respondents' positions within the public school setting. The literature review I conducted increased my awareness of the problem solving process and the measurement of expertise to a point that I could claim intimacy with the subject matter. Since I have served in the capacity of superintendent of a very small school, I am familiar with day-to-day operations of central

office procedures and policy. However, I have never served solely as a building principal. Although I empathize with them because of their position, their struggle with problem solving and the demanding aspects of the job they do, I have not experienced this myself. This examination guided me in the development of the global exploration questionnaire used in facilitating the interviews and prepared me for gathering the data. While intimate with the subject matter, I could still keep the necessary distance to remain objective. This awareness satisfied the requirement of the second step in McCracken's (1988) four-step method of conducting the long-interview.

The literature review I conducted also increased my awareness of the problem solving process and its relationship to the measurement of expertise. This review had another important impact on this study. It was instrumental in developing and refining the Baker/Bottoms "Characteristics of Administrative Expertise" topology (this study, p. 8) as it related to problem solving by building level administrators.

This topology is the core of the data gathering process. It is on this topology that the respondents' thoughts and utterances were placed when the data was analyzed. The review and development of the topology helped me to realize that I have my own personal experiences and bias with which I must deal while conducting the interviews. I did the data gathering interviews with vigilance for observations that will be useful data in this study.

The discovery of cultural categories began with an inquiry into the demographics of the volunteer providing data. These demographics provided insight for me about the culture of the respondent. This allowed me as researcher to have both "familiarization and defamiliarization" processes at work during the interview. Talking about

familiarization McCracken (1988) said, "without ... (it), the listening skills needed for data collection and analysis were impoverished" and talking about defamiliarization he said, "without ... (it), the investigator is not in a position to establish any distance from his or her own deeply embedded cultural assumptions" (p. 33-34).

Another reason to examine the cultural categories is the construction of the set of opening questions for the interview and in conducting the interview itself. These non-directive questions, which I call global exploration questions, were designed to provide a flowing interview. I use the explore concept because of the connotation the word "probe" has for me. Seidman (1991) also uses the word "explore" with his method of interviewing. Talking about the word "probe" he says, "I have never been comfortable with that word. I always think of a sharp instrument pressing on soft flesh when I hear it" (Seidman, 1991, p 61). Although scripted, the interviews rarely followed exactly the script. By having the global exploration questions and the list of ancillary questions in mind, I was able to fully conduct the interviews. The questions and the impetus for them were described here.

Question One

The first global exploration question "What do you believe makes a good administrator? and Why?" was designed to help me determine what innate qualities the respondent felt were a necessity for being in administration. This, of course, was designed to be a reflective question because I assume that the list of qualities dictated by

the respondents will be the same list of qualities that the respondent feels he or she has to offer in being a successful administrator.

A follow-up question, "What qualities have you seen in an administrator who you consider an expert in administration?" was designed with a two-fold purpose. First, to determine the qualities the respondent felt were necessary for success in administration that they feel that they may be lacking and second to determine if they have a mentor, or someone similar, that they look to for advice when a situation comes up that the respondent may need help with. During part of the interview, there were usually opportunities for exploration questions about the other areas of qualities the respondents expressed as necessary for expertise in administration.

Question Two

The second global exploration question, "How have you learned what is necessary to be a good administrator?" was used in an attempt to determine how the respondents arrived at the list of characteristics given in response to the first question. Other questions, "How do you know what information is important?" "How do you organize your work?" and "How do you know how to regulate your work?" were used to give the respondent a chance to relate their role to those of the successful administrators they reviewed as a response to the first question. It also gave me the opportunity to explore their educational role as administrator. The answer to this question clarified the ideals that had helped to shape the respondents into their style of administrative practice. Other

questions were posed as necessary for clarification and for gaining a depth of the respondents' thoughts and feelings.

Question Three

For the third global exploration question, respondents were asked, "Have your ideas changed over time?" "If so, why?" and "In what ways?" "If not, why not?" These questions allowed the respondent to think about the ideas for characteristics they held as important but have now discarded completely or further developed.

Exploratory questions were asked that were designed to help the respondents think of people, places or things that have had a major impact on their problem solving process. Some responses expected were course-work, mentors and professional network. This question was a platform from which to launch other exploratory questions into the depths of the respondents' thoughts.

Question Four

"How does what you have told me fit with the philosophy of education that you enjoy?" was the fourth global exploration question. It was designed to elicit a response from the interviewees about their philosophy of education and other questions encouraged them to elaborate about it. This elaboration opened avenues for further exploration about characteristics of the respondents and their expertise.

The Baker/Bottoms "Characteristics of Administrative Expertise" topology (this study, p. 8) seeks to also determine the level of self-awareness and reflective characteristics of the respondents. This question elicits responses necessary to explore the self-regulating area of expert knowledge that Bereiter and Scardamalia (1993) classified. In order to determine the level of this hidden knowledge in the respondents they were asked this follow up question, "Tell me how you self-evaluate and how do you handle stress?" Respondent answers helped me rank them in the self-regulating category of expertise and, further, it exposed avenues for other, more in-depth questioning.

Question Five

The fifth global exploration question was a challenge question designed as an exercise to allow the respondents an opportunity to think aloud and discuss their problem solving ability and process. This is in response to a question that is germane to administrators involving the Academic Performance Index (API) school scores.

"As you know schools, administrators, teachers and students are being held more accountable than ever before. An example of this is the "API" index score. Suppose your school has been placed on the 'Low Performing School' list and this is the final year to improve or lose local control of the system. Describe in detail the process you would use to improve the API scores in your school and discuss the impact the changes will have on you, your staff and the community."

The API is a calculated score assigned to schools based on several factors, including; achievement test scores at the appropriate grade levels, the retention rate

graduation rates and attendance. If the score on the API does not improve for five years, the school can lose all funding from the state or lose local control of the day-to-day operations.

The final step of McCracken's (1988) long interview method is discovery of analytical categories, relations and assumptions that shape a respondent's view of the world. Further, this question establishes a connection between the research findings and any of the findings revealed in the review of the literature. Data analysis is a five-stage process. The first is to take each individual utterance, find what is useful in it and develop it as observation. Secondly, is developing these observations and later relating them to the previous researched literature. These are the "expanded observations (p. 42)." Next is a focus on the observations, resorting back to the literature and culture, for themes. These are the observations of data. The fourth stage uses the observations and explores them collectively in an attempt to see patterns of theme consistency or contradiction. The final stage transfers these patterns and themes as they appear in the interviews into a final process of data analysis (McCracken, 1988).

It is here that I analyzed the data by comparing the responses of the building level administrators who were interviewed with the identified traits in the categories of informal, impressionistic and self-regulating knowledge on the Baker/Bottoms "Characteristics of Administrative Expertise" topology. Conclusions were then drawn regarding the level of expertise of each individual respondent from the comparison of the responses and the topology. This analysis is presented in detail in Chapter IV of this study.

Summary

In this chapter the global explore questions for conducting the interviews were developed and the collection of data took place. A recount of the sequence is: 1) the global explore questions were developed (Appendix A), 2) consent of the respondents was obtained in a scripted telephone interview (Appendix B), 3) respondents read, questioned, if necessary, and signed an informed consent document that I supplied (Appendix C), 4) the interviews were then conducted with the respondents individually, at a place and time chosen by the respondent and audio recorded, 5) the interview audio recordings were transcribed, 6) the data were presented and 7) the data were analyzed.

The Respondents

I selected the first eight building level administrators who responded to my requests for an interview to be included in this study. The respondents were mostly male, had varying terms of experience in administration and were near my location to facilitate driving. The instrument used in confirming selection of the respondents was a letter explaining the research, the purpose of the research, the procedure and confidentiality, and contained a list of questions used as a record of demographics. When selected, the respondents were asked for their written permission for me to conduct the interview. They also agreed to let me audio-record our conversation.

The respondents were building level administrators from rural and metropolitan statistical area public school districts. The respondents were building level administrators

who were employed in middle or high school building sites except one respondent who was an elementary principal. Six respondents were male subjects and two respondents were female. The respondents had varying years of administrative experience and varying years of teaching experience. All respondents held Master's degrees. Five of the respondents in this study had post Master's hours and mentioned their intentions to finish a post master's degree.

To help maintain respondent confidentially, pseudonyms were given to the participants. The respondents in this study were given the names of common trees, which I assigned randomly. I chose the names of trees because the streets in my hometown named for trees and it seemed appropriate.

Most of the respondents were working in a rural educational setting, although two were in metropolitan statistical area schools. However, the rural schools were in close proximity to the metropolitan statistical area schools located in the Tulsa area and therefore they shared some of the common problems that the larger schools were facing. Below is presented some information about the interviewees as it was shared with me during the interviews. This information is listed in order by respondent years of total educational experience.

Ms. Maple had six years of teaching experience. She had only taught in one school district. She reports no other family in education except a mother who works as a cook in a metropolitan statistical area school near Tulsa. She is however, married to a Junior High School principal. She had just completed her Master's and had started working one hour a day in her building as an assistant principal. She had full duties as a principal including the evaluation of personnel.

Mr. Cherry granted me an interview on his first day of his new job as principal at a rural school located 50 miles from Tulsa. He had completed three years of experience as an assistant principal/athletic director in a metropolitan statistical area school near Tulsa before taking the principal's position. Before that, he was a teacher for three years. This was the fourth school in which he had served in that time.

Mr. Birch had experience in two schools as a teacher, coach and administrator. He taught four years before receiving his Master's of Educational Administration and taking his first assistant principal's job. Mr. Birch served as an assistant principal for three years before he began serving as a principal, which he has done for three years. He had earned 39 hours above his master's and plans to pursue a higher degree. Mr. Birch was the only respondent who reported a family with a background in education. He reported that both a mother and father who are educators and he reports having one brother who is a teacher.

Mr. Juniper told me during the interview that he started out as a math teacher and coach. Seeking a higher salary first enticed him to administration. Mr. Juniper reported being in three schools and had five years teaching and coaching experience. He has another five years in administration, first as an assistant principal and then as a principal. He was the first in his family to graduate from college and had 18 hours in addition to his Master's in Educational Administration. Mr. Juniper had no family members who were ever educators or administrators.

Mr. Magnolia had 10 years teaching experience. He had also coached for two years. Mr. Magnolia had been in the classroom for eight years and had served as a principal for two years. He is an only child and was the first in his family to attend

college. Mr. Magnolia had three hours above a master's and plans to pursue a higher degree in the future. He is married and his wife has an administrator's certificate.

Mr. Pine had a degree in Theology. He says, "I was heavily influenced through my seminary experience." He did church work in two churches in the East before leaving the church to help his father in the construction business. Mr. Pine worked with his father for eight years until his father retired. Because he missed working with children, he decided to teach. Mr. Pine received a Master's of Curriculum and Instruction and at that time became certified to teach mathematics through an alternative certification process. In 1999, Mr. Pine became a National Board Certified teacher. He had a total of 12 years of total experience in public education, which includes his three years as an assistant principal. Mr. Pine had served two schools. Further, Mr. Pine had six years experience in the ministry.

Ms. Cypress reported that in addition to her 22 total years of educational experience she had eight years in private business between her first teaching jobs. At the time of her interview, she had completed three full years as principal of a small 6^{th} to 12^{th} grade site. Ms. Cypress had 6 hours above a Master's Degree in Education and plans to continue her education. There is also a plan to change schools again before completing her degree. Ms. Cypress' father only finished the 11^{th} grade and worked at a post office for 35 years before retiring. Her mother graduated from high school and worked for several department stores while she was a public school student. Ms. Cypress reported that she had some cousins who were teachers.

Mr. Oak is starting his 27^{th} year in education, 17 as a classroom teacher that included eight years coaching experience. Further, he had seven years as a vice-principal

and two years as a principal. Mr. Oak had accumulated this experience while being in one school district. He also did one semester of intern teaching in this system. In addition, Mr. Oak had had served six years in the military. Although Mr. Oak had a Master's degree in Special Education and a second Master's degree in Educational Administration, he had no hours above either of these degrees. Mr. Oak was eligible for retirement when the interview was conducted.

On the next page, Table 2 shows the characteristics of the respondents presented by order of total years of experience from least to greatest number of years in a public educational setting.

Table 2

Summary of Respondent Characteristics

Respondent	Total Years Experience in Education	Years Administrative Experience	Number of Schools in which they have worked.	Hours Above Master's	Child of Educator	Previous coaching	Metropolitan statistical Area School or Rural School
Ms. Maple	4 years	0 years	2	0 hours	No	Yes	SMA
Mr. Cherry	6 years	3 years	4	0 hours	No	Yes	Rural
Mr. Birch	10 years	6 years	2	39 hours	Yes	Yes	Rural
Mr. Juniper	10 years	5 years	3	18 hours	No	Yes	Rural
Mr. Magnolia	10 years	2 years	2	3 hours	No	Yes	SMA
Mr. Pine	12 years	3 years	2	16 hours	No	Yes	Rural
Ms. Cypress	22 years	3 years	3	6 hours	No	No	Rural
Mr. Oak	26 years	9 years	1	0 hours	No	Yes	Rural

Presentation of the Data

This section is a presentation of the data gathered during the interviews. It is from these comments that an analysis will be made to determine the existence of the three categories of hidden expert knowledge. Themes that occurred in the interviews are presented concurrently with data supplied by the respondents. The questions presented above yielded data in three major themes: 1) problem-solving processes, 2) stress and administrator legitimacy issues and 3) essential administrator knowledge bases. In addition, a section is devoted to characteristics of good administrators. The problem-solving theme could be further divided into pertinent sub-themes to which the respondents vocalized or eluded. These sub-themes were: a) use of a network of mentors, b) use of research and literature and c) use of a committee. These sub-themes are also presented here.

Problem Solving Processes

The building level administrators interviewed were all asked to respond to a challenge scenario that involved problem solving for the best means to radically improve instruction, test scores and the API index or face losing their school. Each presented an idea, or perspective, from which they thought this task could be accomplished. Although the ideas were different, common characteristics emerged during the problem solving process of the respondents. One of the common elements of the problem-solving process was that each respondent verbalized steps, or stages, that they would use in problem

solving. These steps were essentially in the format of: initial diagnosis, data collection, analysis and feedback, action planning, implementation, and follow up. Most respondents included a step in which they felt a need to involve stakeholders, specifically, the faculty, staff, students and community in the problem solving process.

Here are the comments made by the respondents regarding each of the steps they thought necessary in problem solving. The steps revealed in the review of the literature are the steps that the respondents followed. The presentation of the data takes its format from these steps of problem solving.

Initial diagnosis. Most but not all of the respondents took a first step in which they made an initial diagnosis. This seemed to be the case no matter how rudimentary the plan outlined by the respondents. Initial diagnosis is the first assessment of the problem and is necessary in problem solving.

For the most part, the respondents began with an assessment of the scores returned on the API index to see if there were weak areas in the curriculum that needed strengthening to raise the score for the following year. Mr. Magnolia began with this kind of an assessment of the scores "...to find out why we got to this point." "I try to base decisions on what is in the best interest for the kids." He used this assessment as a learning opportunity. He said, "You don't just quit learning, I keep up with professional journals and always pick up something that would be good here."

Ms. Cypress was in a school where the API index score was low or was not improving. She was facing a situation like the problem-solving challenge in the future if the scores do not improve. Therefore, she also made an initial diagnosis of the scores in

order to begin problem solving. As her initial diagnosis of the problem-solving challenge, she told me,

> We had to incorporate our Alternative Ed (education) classes. … The kids in there don't really care, and consequently they play tic-tac-toe with the testing. If the scores were not significantly higher than last year's scores, I will probably come in with some very specific designs for that week.

It is here that she is making her initial diagnosis of the problem by looking at the current scores and comparing them to the scores of last year.

Similarly, Mr. Oak also began with an assessment of the scores. He outlined his first step in the problem solving process "First, I would try to find out exactly where we were weak, what subject areas were low on the test."

Mr. Cherry also wanted to know what subject areas of the test were weak in his initial diagnosis. He made this statement, "Well, my first question there is, where, what subject area, what area the API has a dropout rate or, for example, if you're just testing tenth grade math." This comment showed a familiarity with the API index score and its composition because he knew that there are more than just scores involved in its computation.

Ms. Maple was the youngest respondent and the respondent with the least experience. Yet, when asked to develop a strategy for improving the scores, she too made an initial diagnosis of the scores on the API index. She stated, "I would see what we need to work on and then focus on improving." This step shows an initial diagnosis of the problem as her first step in problem solving like the others in this group of respondents.

Mr. Pine, however, took an approach to the problem that no other respondent took. Having an analytical background contributed to the formulation of his initial diagnosis step. He outlined his problem-solving process to the scenario beginning with this step:

> I would call the State Department of Education and get very specific with them about the formula for the API because I believe that I can write a program that will show me how each of the areas will influence the API. I guess the first thing I would do is sit down with the API index and scores and try to see where it is that we need the most work.

Mr. Birch used a strategy similar to others in his initial diagnosis. "I guess the first thing I'd do is to find out why we were put on the list." However, he continues with an observation that no other respondent made when he said, "One bad thing is that you only have about four or five weeks to do something after you get the scores or it would be too late for us to do anything." This shows an insight to problem solving that no other interviewee vocalized. This insight showed his concern for ancillary issues during the problem-solving process.

Data collection. The second step recognized in the problem-solving process is data collection. It is in this step that, after an initial diagnosis is made, a problem solver will collect as much information as necessary to satisfy their desire to reach a reasonable solution to the problem. Not all respondents collected data, rather they used the lowest reported area of the test scores as determined in the initial observation as their final data

collection from which to base a solution to the problem challenge of raising the API index score.

Mr. Juniper, however, did do data collecting. He used a committee to help with the data collection process. He said, "I would get together a committee of other administrators, including the superintendent, some teachers and community members to determine the exact problem with the API scores." His reasoning for this was that they would eventually form the basis for the implementation of the problem solution and would also become a group from which to pull expertise and a group from which to draw community support.

Mr. Magnolia also wanted to involve a committee in the data collection phase of problem solving. He stated, "In the past my old superintendent did not like committees." Mr. Magnolia said he would involve "key players" on his staff. This allowed these individuals to become a part of the process. In effect, this helped to legitimize the solution to the rest of the staff. He went on to voice this opinion, "I like collaborative decision-making because it gives the staff empowerment. It'll also gives the decision more creditability and more people tend to work toward the conclusion because they were a part of it."

Mr. Birch would use a committee in problem solving, however, he immediately began to collect information and data about the problem in his second step of problem solving. He said, "I would call a friend of mine and ask him what he was doing and start finding out what I could about the situation." This suggests that not only is he working on a solution to the problem but is also interested in consequences of being placed on the list again and possibly losing the local control of the school.

Mr. Pine's data collection process delved deeper into initial diagnosis. He said, "The next thing I would do, depending on what happened when I look at our own scores and find an area we're not working with, is to look at the information and try to decide myself which indicator is the cause of us scoring so low." In this action he is using his experience and the knowledge he can gather about the problem without using any collaboration.

Analysis and feedback. After finding the initial area in which the problem exists and then from data collection the recognized steps for problem solving bring us to analysis and collaborators' feedback. Not all respondents sought feedback from collaborators about the issue. Although Mr. Birch was forming his own opinion about the problem and its solution, he was however, open to new ideas that could possibly hasten the solution to the problem. At the same time, he wanted to involve his stakeholders. He said, "I would ask them (his faculty) for any input that they have or that they can find out from their network of peers." Mr. Birch was, at this point in his plan, still involved in the problem-solving process. He demonstrates a willingness to research ideas and use the information if necessary in his plan when he said, "I don't know, I probably could have researched it and found some material on it." When asking for feedback and an analysis from his key people he said, "I would make a list of things that we need to know and have the committee find out those things."

In a similar move, Mr. Magnolia involved a committee in the data collection phase of problem solving and here in the analysis and feedback stage. He said that by involving the key players on his staff it allowed them to become a part of the process and

in effect to help legitimize the solution to the other staff. He went on to voice the opinion that it gives the staff empowerment and gives the decision more creditability. He also said, "If something blows up the blame is not squarely on your shoulders but can be dispersed with everyone else."

Mr. Juniper also uses a committee in a like manner. He says, "If the committee feels that they made the decision, they will be more likely to work toward a goal and will not be prone to being negative about it to other community members or to the staff."

In a different vein, Mr. Pine does not indicate that he would ask for help in data collection, rather does it himself. However, he does need feedback from collaborators in order to implement a plan for problem solving. He says, "I wouldn't go to the teachers at first, but at some point you're going to go to your teachers and say, What are you teaching? Let's take a look at what you're teaching and try to get a plan put together to where you know what the problem is, then create a plan to deal with that problem ..."

Action planning and involving stakeholders. Action planning is developing a strategy for the problem solution that can be implemented. It might be called a "plan of action." Stakeholders are the people or groups of people who are affected by the problem. In the educational setting it is the faculty and staff, the administration, the parents, the community at large, and to a lesser degree the students. Mr. Magnolia's steps in problem solving involved action planning and involving stakeholders. He said he would involve "key players" on his staff. Again, he says, "I like collaborative decision-making because it gives the staff empowerment. It'll also give the decision more creditability and more people tend to work toward the conclusion because they were a part of it."

Mr. Birch also used stakeholders in his action planning. He continued with another step, "I would call in some staff, tell them the problem, and tell them that we need to do something and we don't have much time. I'm fortunate. I've got some good teachers here." After presenting the problem to the teachers which he first contacted, Mr. Birch asked them "...to be thinking of things that might help."

> I then would meet with all the teachers, tell them my concerns and share the information that I have. I would ask them for any input that they have or that they can find out from their network of peers. We would then come up with a program that addresses the problem.

Similarly, Mr. Oak's next step involved an action plan. However, it did not involve stakeholders in the planning for change. He took an independent second step. He said,

> I would probably re-evaluate my personnel in those subject areas to see if I needed to make some changes stock wise, you know, if I need to rearrange the staff and put a real strong teacher from a different level in that position. If we are dropping down each year, I might have to make a change there. I would also look at the pass objectives and see why we are not mastering them. If we are not mastering them then we're not teaching them.

On a similar line of thought, Mr. Pine did have an action-planning step. Although he worked independently on a solution, he did involve his faculty. Mr. Pine said that he would go to the teachers and say, "Let's take a look at what you're teaching and try to get a plan put together to where you know what the problem is and then create a plan to fix the problem".

Mr. Juniper also uses stakeholders in his planning. He likes to involve as many stakeholders as possible in problem solving. He said, "Our community is good. If I need people to help in different areas, all I have to do is ask." He was referring to the initial step of putting together a committee to look at the problem and to come to a consensus about a solution.

Implementation. Implementation is putting the plan that had been developed into action. Two major divisions in this area emerge in the data, and they are related to how the plan was developed. The first division is where plans were developed without much, if any, collaboration of stakeholders. This happened in most of the respondents' plans. The second division is where stakeholders were allowed to help develop or to have ownership of the plans formulated.

Mr. Oak did not involve stakeholders to any degree but rather said he would call around to some other principals to find out their plans that they are doing about solving the problem challenge of being placed on the low performing schools list, those with a low API index score. He arrived at a possible solution of rearranging the staff for a better teaching fit. He then said,

> I might seek outside help (for this). There are people who come in, look at your lesson plans and a lot of things, and try to help you raise your scores. We have contacted Alpha Plus one of the companies who does that. I might look to somebody like that who has been successful in other schools.

In a similar fashion, Mr. Cherry thought of a plan to implement. His plan was not well organized nor did it have clear steps or clear outcomes. He said, "The only thing I

can think of at the time would be, get together your math department, go over your curriculum, basically, with the distance you've come, you find a hole in the boat and you fix it."

Mr. Pine worked hard and independently to come up with a viable solution. He then took it to the superintendent for approval. Mr. Pine said that he would present the solution to the staff and, "then implement the plan and monitor it."

Similarly, Ms. Cypress told me that she would come up with some distinct teaching outlines for the staff to use with the students in an effort to raise test scores. She said, "That is, you will work on this section of the test for the subject area. I hate to teach the test, I think it's a shame that we need to do it but it appears to be the only thing that we can do."

Mr. Juniper and Mr. Birch however, came up with plans that their collaborators helped them to develop. They both started their plan implementation with the word "we". Mr. Juniper and his committee came up with an action plan. They then put that plan into action. Mr. Juniper said,

> We would then come up with a plan for raising the scores. It might be a reward for students, teaching differently or bringing in some other resource people to help us teach or even assemblies to help the students learn. Whatever it takes.

Also, Mr. Birch on implementation of the plan: "We would then develop a program that addresses the problem." He is referring to the work that he and his committee did in the initial diagnosis and analysis of the problem.

Follow up. Follow up is monitoring the plan as implemented or as revised as it is implemented. Not all of the respondents had a step in problem solving that could be counted as follow up. Most of the plans, however, had follow up that included monitoring of the progress of the plan as it was implemented. An end of the year evaluation by state testing was the solution for follow up in other plans formulated by the respondents.

Most of the respondents who actually came up with steps in their plan to the problem solving challenge saw the need to follow the implementation and monitor the progress. Mr. Magnolia expressed the need to "...monitor the progress of the plan after it is implemented to further assure success." Mr. Birch said, "Of course we would have to watch how its working and make sure that we're getting the results that we should if we are going to do better on the year-end test."

Mr. Cherry said,

> Just diligence. I can't say anymore than what I said, its diligence and making sure. That's the way it is. Basically, getting the pass scores through to the teachers and make sure they get it to the students, just keep on keeping on. And, if you've done that, if there's no pass, that's rotten luck I think, but I mean I think anybody's who's diligent and is making that kind of effort, is going to see some improvement.

Mr. Juniper also saw a need to do frequent follow up activities as a part of his action plan. He said, "I think we would then have to practice the way to take the test and monitor how we do."

Mr. Pine also included follow up and regular monitoring of the plan and its progress. He was, in fact, the most adamant about follow-up monitoring. He said, "I think

the big thing is monitoring. You've got to, every week a person has to get in there … to see if we're making progress."

In a different interpretation, Mr. Oak and Ms. Cypress did not have regular monitoring or follow up intentions. Mr. Oak mentioned that there would be at least one follow up evaluation. He said that the evaluation would come "…at the end when we take the test again." In a similar train of thought Ms. Cypress said,

> "We'll see if that (the plan) had any affect, if our kids' scores are up significantly at the end of the year, I will probably do a follow up survey to the students saying, it appears our scores went up. To what do you attribute your particular advancement?"

In summation, each respondent had a plan of some kind, no matter how rudimentary, from which to assess the problem and make an impact on it in some positive manner. All of the respondents vocalized a plan that involved steps or stages through which they take the problem in reaching a conclusion.

Common Sub-Themes in Problem-Solving

The problem-solving process of the building level administrators who took part in this study contained some pertinent sub-themes. The sub-themes revealed by the data were: a) use of a network of mentors, b) use of research and literature and c) use of a committee. The data gleaned from the interviews on these sub-themes is presented in this section.

Networks of mentors. The use of a network of other educational professionals is discussed notably in the steps of problem solving outlined by the respondents. Mr. Magnolia stated,

> One of the important resources I pull in when making a big decision is primarily from immediate supervisors, other administrators and staff. But, I do talk to counselors, faculty and teachers. I also have some folks in other schools that I can call and ask for input.

These are all sources of networking that Mr. Magnolia, in addition to the other respondents, has developed in helping him to make important decisions.

Mr. Oak used networks as well. The network of peers on whom he relies most heavily, however, is the one he has developed locally from the other buildings within his school system. When discussing problem solving he stated, "I talked to the superintendent. I talked to some other principals in the system who have been at it longer than me. I just try to get advice from those more experienced than me that I know and that I know would try to help me." He also confided, "I've always realized the value of talking to others, especially people that I feel like are on top of what they're doing and have knowledge there from experience."

Mr. Birch, while discussing the problem scenario, stated that he would encourage his staff to use networking. He said, "I would tell the teachers; 'you guys all have a network, you've got friends at other schools, so call some of these places and see what they think'." He went on to say about himself, "I have two pretty close friends of mine who are administrators at two different schools and I am able to talk with them." Another time while talking about courses he completed for his administrator's certificate he said,

"I think the class work is as important just for the time spent in the lobby before, at break and after class as anything. I mean just building a network."

Mr. Cherry indicated he did not use a network but then went on to say, "…I've moved up pretty quick. So I can't say I developed really strong long-term relationships with people yet. I have met some really good administrators that I think will give me help."

Although Mr. Pine does use networking to a degree he had not thought of it as being a network. "That's interesting," said Mr. Pine when I asked him about networking. "I never really thought about that. I do call on people for advice but it is mostly the superintendent and other principals here. After all, he's the one who will add his blessing to anything I do."

Ms. Cypress is like the others regarding networking. She told me "When I first got this position I called Mr. Blank (not real name) quite a bit because he was really one of the administrators in discipline that I knew and that is one of the very first things that I was charged with here." She said that now that she is a principal and now that she has more experience,

> I call people I have met in the principal's academies. They are good, if for nothing else, as an excellent source of networking. I also call the attorneys for some specifics, especially in Special Ed, some questions that I had with Special Ed and how the discipline needed to be with them. And, as I have grown up in those groups, the networking has just grown from there.

Mr. Juniper is active in a multi-county principals' group. This makes his situation different in that he can build close, lasting relationships from repeated contact and

interaction with the other administrators he meets in his group meetings. At the meeting, the principals discuss educational issues. He says, "There are several in that area that I call for advice. I call different ones depending on what I need an answer to. They all have different things they are good at and I just pick who I want to call."

Because Ms. Maple is just in her first job as a part-time administrator, her situation is different for the others who tell of networking. She is "...just now making contacts that I hope can be in my network." This makes her situation a little different from the others who discussed networking. She does rely on the building principal for guidance and support, however.

In summary, it has been indicated that not all of the respondents said they use a network. However, the ones who do not vocalize that opinion still say they rely on someone for help. All of the interviewees have a network of people who they call upon for advice and help when confronted with a situation where they feel their experience or knowledge is inadequate for problem solving.

Research and literature. Some of the respondents talked about the role literature and the role research would play in their problem solving process. The data provides two distinct lines of thinking in this area. These lines were an informal approach to role literature and research and a formal approach to the use of literature and research in problem solving. The respondents who used an informal approach to use of literature and research are presented first.

Informal use of literature and research is casual in nature and many times is not information that is deliberately sought by the respondent. "I try to base decisions on

what's in the best interest for the kids," Mr. Magnolia said. "You don't just quit learning, I keep up with professional journals and always pick up something that would be good here."

Mr. Oak also uses literature in his day-to-day operation as a building level administrator. He said that he uses articles he finds in publications when they seem relevant to a situation he may be dealing with. He tells me,

> I think communications is something that you must work at it if you want to develop it. There are publications that offer examples of different kinds ....I look through publications and if something grabs me, I'll read it. I don't search out things, probably not as much as I should. There are so many cure-alls and everything like that in these publications that I pretty much just try to stick with what the state sends down for us to do and then try to find a best way to do it.

Similarly, Mr. Cherry talked about educational journals and indicated that he did read them occasionally. He was unlike the other respondents, however, in that he professed to a reliance on the legal publications and the school law book. He went on to say,

> ...I can't say that I rely on them (publications) too much. I have relied on, or at least the one I've consulted the most, is the law book for Oklahoma. There's another book that I've seen, it's laws about education, I consulted that book. I have reflected back on courses, particularly my educational law course.

Ms. Cypress uses much of the material that she has assembled from the learning academies that she has attended. She is the only building level administrator who tells me that she has attended these academies and that she relies on them for help with her job.

She said, "I rely a lot on books and resources from the academies that I've gone to. As for the course work I've had, as for actually consciously remembering or utilizing some things, I don't or at least I do not know that I do."

Again, being the administrator with the least experience, Ms. Maple said she subscribes to a number of journals while teaching and now that she is an administrator, "I can see the value in reading what other people have done and learning what impact it has on their schools. I might use some of this when I get a school of my own."

The converse of the informal research gathering is the kind of research that Mr. Birch and Mr. Pine say that they do. They deliberately seek knowledge from literature for the purpose of problem solving.

While talking about his problem solving strategy, Mr. Birch told me about his network of colleagues upon whom he calls. He said, "Truthfully, I have enough friends to call that I don't have to look anywhere else." He indicated that he could research ideas and use the information if necessary when he said, "I don't know, I probably could have researched it and found some material on it." He went on to say, "I would make a list of things that we need to know and have the committee find out those things."

Mr. Pine, similarly, was very specific about what kind of research he did and where his information came from. "I don't depend much on article type publications", says Mr. Pine. "But I do read books on education. Stuff by Howard Gardner on brain-based research. I've heard Dr. Melvin Deaton speak and would definitely like to work in a place where I could talk to this individual …"

Summarizing, most respondents who provided data in this category feel that they have the ability to do research on topics of interest to them in the day-to-day problem-

solving activities that arise. The research they do however, is informal and non-deliberate. They read educational journals, some on a regular basis. However, two of the respondents told of using a formal approach to research and sought information deliberately in problem solving.

Use of a committee in problem solving. Some of the respondents mentioned using or forming a committee of various people to help with or to validate their problem-solving duties. The global exploration question that was presented to the respondents implied problem solving on a large topology that might have a major impact or change associated with it. However, the use of committees would not be an option on the day-to-day problem solving that these administrators must accomplish. Not all respondents mentioned the use of committees, however, those that did used the committee in a similar manner. Presented here are the comments on committees and the use of committees in problem solving.

"I like collaborative decision-making" says Mr. Magnolia, "because it gives the staff empowerment. It'll also give the decision more creditability and more people tend to work toward the conclusion because they were a part of it." He also said that it was good because, "...if something blows up then the blame is not squarely on your shoulders." This demonstrates the use of committees for multiple purposes. It is obvious that he wants to use a committee for the reasons of collaborative problem solving and validation of the solution, however, he also wants to defuse the blame should things go wrong.

In discussing his strategy for raising the API scores at his school, Mr. Birch took as a first step forming a committee. He too believes that a committee adds validation and

credibility to the solution. He further believes that there may be input that is valuable in the problem-solving realm. He said, "I would call in some staff, tell them about the problem, and tell them that we need to do something and we don't have much time. I'm fortunate. I've got some good teachers here." After presenting the problem to the teachers that he first contacted Mr. Birch then asked them "...to be thinking of things that might help." Mr. Birch went on to say, when discussing a change they had begun undertaking,

> Some of the teachers and I had some questions and wanted to visit a school that had already made the change. We talked to the superintendent and he said, 'sure' and I took a counselor, three department heads, and a teacher with me and we went to a neighboring school.

Mr. Juniper uses a committee for the reasons state above. As stated earlier, he likes to involve as many stakeholders as possible in making decisions that will have a major impact on his school. This implies that he uses committees as frequently as is necessary.

Ms. Cypress, on the other hand, told me that she would use a counselor, other experts and herself when modeling for the staff the proper methods of teaching lesson plans as a part of a program to raise the API scores in her school. This use of a committee is not collaborative but is in the implementation phase of the plan. The committee she is referring to is not one used as a resource for implementation, rather part of the implementation of the program she developed for improving the scores. She said, "Trying to help with the assistance of my counselor and some other experts, how to look at those test scores, how to evaluate them, how to improve them. Not just handing them the test scores and saying you need to better next year."

Although not all of the interviewees mentioned the use of a committee as an aid to problem solving, the ones who did mention their use did so in a manner that placed much importance on their use. So much importance was placed on committees and their use that it was included in the planning steps outlined by some of the respondents.

Summary

In the steps for planning adequate solutions for the problem solving challenge question, the respondents not only had similar processes in the formulation of the plans but also had similar mechanisms from which to seek help and implement the solution. These mechanisms were the use of a network of mentors, the use of research and literature and the use of a committee. The network of mentors provided data analysis as well as advice for problem solving. The uses or literature and research provided additional knowledge the respondents may not have from experience. Committees were used to help with and validate the solution and implementation phase of problem solving. One respondent used a committee of knowledgeable people in the implementation phase of the plan.

Administrator Legitimacy Issues and Dealing with Stress

Much of the interview data focused on administrators feeling of legitimacy and how these administrators recognize and handle stress created by their positions within the

educational setting. This section is devoted to how the interviewees responded to questions that deal with these issues.

How to handle stress. One unexpected outcome from the data was the fact that all of the respondents had a plan for dealing with stress. Some of the plans were sophisticated enough that they included both how to determine when the respondent was feeling the stress and an escape mechanism to help in withdrawing from the stressful situation.

When asked how he handles stress, Mr. Magnolia replied, "I drink." He then laughed and said, "Not really, but sometimes this job makes you feel like that's an option." He went on to say, "I can sometimes tell when the stress is getting to me. I try to get up and concentrate on something else that needs done to get away from it." He used laughter as an escape mechanism for the stress he must have been feeling from the interview.

Mr. Oak vocalized his use of laughter when he discussed some stressful situations and about how he handles them. He also told me that to avoid the stress he tried to take things is a less serious light. He said, "I try to not take anything real seriously. I try not to get real uptight about things." He also said that he did get stressed on occasion and when he knew that he was under stress he "Sometimes I just have to kind of get up and go outside and walk around for a little while and take a deep breath." He also recognized that there were different types of stress. He said, "There's different kinds of stress but in my, I guess, in my aging process, I have decided life's too short to just get all stressed out about everything and I really try to keep things low-keyed and just not get upset".

Mr. Juniper, like the others, talked about how his first years went as a building level administrator and I think he echoed their feelings when he said,

> The first couple of years as a principal, I decided that I didn't really want to be a building level administrator anymore. The stress was too much. I never comprehended how much the stress could be.

He did show insight when he said, "It's caused by having so many people coming at you wanting different things that they seem like they're attacking you. I learned that they weren't actually after me. They were after the person holding that chair." He went on to say, "Stress levels have highs and lows." Addressing how he reflects he said, "I just sit out in the truck a lot and I just think. Sometimes we all just don't know, really, what we think we know. I've thought this many times, and these are just inward thoughts."

Mr. Cherry and Mr. Pine have relatively few years in administration yet they had two of the most elaborate, well-defined plans for dealing with stress. Mr. Cherry discussed at length the stress he has and how he handles it. He was very specific about many aspects of handling stress and how it affects his life. He said,

> The key for me, I don't know if I'm stressed out during the day or I can't really tell. What I do, my key is, when I'm not here, when I'm at home, I don't think about it. And that's important to me, my time. I told my superintendent, I'll give you 20 hours a day if you need it and that may happen. It may call for that. But when I'm at home or I'm not at work, I don't worry about the plight of the high school kids at my building or about what. I take my time off seriously. Vacation is important to me, and travel, and I can play golf and I lift weights and I do things

that make me happy, because I do work hard, but I take my – I know how this sounds – I take my vacation just as seriously as I take my work."

Similarly, Mr. Pine discussed some stressful situations in which he had been involved and how he has learned to handle the stressful problems. He says,

> Well, what I've learned in terms of stress situations is: you don't look too far ahead when you're in a stress situation. What you do is, you say, "Where am I? Where's the stress coming from? Where's the pressure? Where is the flack coming from? What's causing the stress?" And then I look at it kind of like an "inflection point". If you build a curve, there's going to be a place that it breaks. And, I start looking for that place. I start trying to say, "What is it that I need to do to deal with the issues that are involved in front of me? Who's saying what and how do I deal with those issues?" And then I take it pretty much a day or two at a time and just keep taking little steps to get things accomplished and get along that way. If you try to look too far ahead, it's going to overwhelm you. At least, that's been my experience. I do have a place I want to get to. That's what I call the "inflection point". I kind of look up here and say, "Here's where I want to get". But then I start dealing with it in small increments until I work through it. The other thing is, some people try to back off from stress. That never really worked for me. I have to attack issues. I have to get in there and mix it up or I'd never get something accomplished. I'm not the type of person that's going to go sit in my office and just wallow myself off, because I can't get anything done that way. On the other hand, you've got to be real careful that you don't be too aggressive

> because you can stir things up, too. So, it's kind of a balance. You have to reach that balance.

How to live with other's decisions. Only one respondent had comments that are included in this category. I feel that the comments that are made are worthy enough to warrant inclusion here. These comments were made when Mr. Magnolia related a story contemporary to his work environment. In dealing with the employment of a new teacher, it seems that he and the superintendent did not see eye-to-eye on the correct candidate for the job. Mr. Magnolia continues the story, "I told him that he had said that every decision he made would be based on the best interest of the kids." Mr. Magnolia's plan was contradictory to the superintendent's wishes.

> I told him I would support him one hundred percent and nothing would come out of this room. If I've been told no by the higher ups, I don't line up troops for a war. I support the decision my boss makes. … he's made a decision contrary to mine, I would just ask him "Why? What are your beliefs on this? and, 'How is it benefiting the kids?" If I'm questioned from the outside, I would give that info back to the parent or concerned party.

Job security. Job security is an issue that can cause stress and add to feeling of inadequacy for administrators. Although Mr. Oak is the only one to address the issue I think he summed up the feelings that many in administration may have about job security, especially when they near retirement age, when he said,

> I've always said and always felt that once you can retire, I think your stress level will drop because I think everybody, in the back of your mind always has a little bit of fear, will I screw up and they'll fire me or something, you know, then what will I do? Well, once you get to where you can retire so they fire you, you retire, you know. I mean, that's probably an over-simplification but I do think that you would kind of take things differently. Somebody even that doesn't try to keep it as low-keyed as I do, I think still, when they know they can retire, I think things will start to ease up a little bit.

Mr. Oak has some legitimacy issues that he also discusses. He thinks that these issues are common to administrators who are in a position like his

> Because I think lots of people in the back of their mind feel like, you know, something could always happen and I got fired, then what would I do? I'd be messed up. Especially when you get to a point where I'm almost there but not quite there.

Mr. Birch, also told me about his feelings of legitimacy when he said, "I've said this many times myself, that the principal job's not a bad job but it's not a job that was made for me. There's probably something better out there." He handles the stress by "…try(ing) not to dwell on the negative stuff. It's hard but I try not to take it home with me either."

In sum, stress is an issue with which all administrators must cope. All the respondents to some degree felt stress. This stress was caused by many factors. Some of the respondents reported stress caused by job security, dealing with people, living with decisions others make that may be contrary to their own feelings, and stress is caused

legitimacy issues that the principals may internalize. However, each of the respondents have found a way of dealing with the stress. Additionally, all have some escape mechanism where they can leave the situation behind and reflect about the situations from which the stress arose.

Essential Administrator Knowledge Bases

This section discusses the knowledge that the respondents feel is necessary for success in their administrative position. All the respondents felt that an essential knowledge base was indicated for an administrator to be successful. The knowledge bases were: 1) the right kind of knowledge for the job including knowledge of communications and dealing with people, 2) the knowledge from experience brought to administration from a teaching background, from the proper course work and from hands-on experience, and 3) seeing the big picture.

The right kind of knowledge for the job. Mr. Juniper, when discussing his mentors told me how important it is to have the right kind of knowledge for the job. Mr. Juniper said, "You have to know people and have an open door policy, where the community knows they can come in and talk to you about things. And believe me, it takes a great deal of skill to do this." He also said that a building level administrator "...has to know what his job is and what bounds the superintendent and board are willing to let you have."

Along that same vein, Mr. Magnolia told me that he thought it was important for administrators to keep abreast of educational ideas and issues. He said, "It is also very important to keep up with the trends in education and the best place to do that is with professional journals."

Mr. Oak, likewise thought, "A good administrator understands his job, understands the things that can and can't do. … Mr. Oak implied professional knowledge with this comment, "The administrators that are successful are the ones who have the fortitude to stand by their guns. If they think they're right, stand up for it and stay with it."

Mr. Pine says that it is essential for a good administrator to have the knowledge to "deal with students, their needs and to do that we must have data that tells you about the students and we have to talk about the students."

Knowledge from experience. Some of the respondents told me that they thought a successful administrator should possess a knowledge base brought from a teaching background, with the proper course work and with hands-on experience to the principalship.

Mr. Juniper realized that the right kind of background was important. He said, "I'm close to a couple of other principals but there's four or five of them that I regularly see, and I really watch them to see what they do. I try to pick the characteristics that I think are the best from each one."

From this frame, Mr. Magnolia told me that it is essential for a building level administrator to have the following knowledge bases in order to be successful. "First of

all, I think a principal has to have a good teaching background. I don't think you can learn everything you need to know from your courses." Similarly, Mr. Magnolia says that administrators must not quit learning and that "You don't learn everything from your course work. You have to have a good teaching background."

Mr. Birch said, "I think a good administrator, obviously, has the right kind of background. I mean some of it may be schooling or time in education. It comes from hands-on experience."

Seeing the big picture. The data revealed three major divisions in this theme. These themes were: 1) ownership of the field, 2) being professional and visible and 3) proper use of time management.

Ownership of the field. Some respondents vocalized their feelings that a successful administrator must have ownership of the field of education. Mr. Oak says that it is necessary that a good administrator "He has to stay involved with every area of the school."

And again, Mr. Juniper, talking about a successful administrator, says, "He has to have knowledge of the field and have ownership of it."

Professional and visible. Many of the respondents told me that an important knowledge base was to be visible, not only visible in and around the community but also visible professionally. To accomplish this they suggested that administrators must have the knowledge to join, attend and be active in professional organizations.

Mr. Magnolia, too, said that it was important to look and to be professional. He said, "That brings me to the other point. You have to join and be active in your professional organizations and attend educational conferences."

Mr. Cherry also thought that being professional was an essential knowledge base of a good administrator. He said, "...the best role model is the assistant superintendent at Glenpool. He's professional and smart."

Mr. Birch talking about visibility said, "I think a lot of it is just being seen." He told a story about an administrator who "made a point of every time there was a school function going down to adjust the mike or something, just so people would see him and know he's there and supportive."

In support of this idea, Ms. Cypress said, "I don't know if you want to call it a knowledge base or a skill, but visibility is another. Sometimes you're not required to go to a ball game but I like to be present. So being visible says ... I'm going to show you that I care about you as an individual."

Time management. Mr. Cherry thinks that good administrators have the knowledge to organize their time and

> ...write things down on a "this weeks" list and a "things to do list." Then the only interruptions are from basically three things. The daily operations, people come in, somebody has a fight, somebody's tardy whatever, that's going to happen. So I'm always working on and trying to accomplish my goals.

Ms. Cypress says that good administrators know how to organize themselves. "...so that they are prepared whenever they speak to the public, parents, or with the teachers."

Mr. Juniper says, "A good administrator knows how to organize a school to be a good environment for people to come and work." They also have to know how to "...manage their time."

In summary, all the respondents felt that an essential knowledge base was important for an administrator to be successful. These knowledge bases were: 1) the right kind of knowledge for the job including knowledge of communications and dealing with people, 2) knowledge from experience - brought to administration from a teaching background, from the proper course work and from hands-on experience, 3) seeing the big picture, be involved with and take ownership of all areas of education, 4) be professional and 5) knowledgeable about personal time management

Characteristics of Successful Administrators

All of the respondents mentioned characteristics throughout their conversations that they thought successful administrators possessed. Although not all mentioned the same characteristics, nor did all put the same emphasis on the characteristics mentioned in common, these characteristics are related in this section. Further, the characteristics are skill related. Although the respondents thought that the knowledge bases and the characteristics could both be learned, as least to some degree, they thought the characteristics are instinctive in some individuals. The characteristics the respondents

listed are; 1) having intelligence, 2) being friendly and good with kids, 3) possessing a good work ethic and good moral character and 4) being open-minded and confident. Their comments are reported here in more detail.

Intelligence. Only five of the respondents made comments that are included in this section. Mr. Juniper thought that intelligence was a necessary characteristic for any principal when he listed the characteristics of friendly, easy-going being a life-long learner.

Mr. Cherry also thought that being intelligent was an essential characteristic of a good administrator. He said, "...the best role model is the assistant superintendent at Glenpool. He's professional and smart."

During our conversation, I asked Mr. Birch what he thought the characteristics of a good administrator were. He said, "I think a good administrator is intelligent."

Mr. Pine thought that a good administrator should possess intelligence in the form of good logical thinking skills. He said, "A good administrator would possess logical thinking skills, learning skills and language skills."

Mr. Magnolia thought intelligence was necessary in order to be "able to learn from others and from mistakes made while on the job."

Being friendly and good with kids. Four of the respondents made comments regarding this area those are included here. Mr. Birch said, "I think a lot of being a good administrator is just being friendly to the students, the teachers and the community."

Mr. Juniper thought that in order to be successful as an administrator one should posses these characteristics. He listed the characteristics of friendly, easy-going being a life-long learner.

Mr. Pine listed the characteristics that he felt were essential to being a good administrator. He said that they should posses "characteristics that let them learn and care about people, care about basic needs that the students have, and they learn and they teach you to learn about people."

Mr. Oak thought that a good administrator is one who is "... involved in every aspect of education."

Ms. Maple said that a good administrator "...must love kids and the job." She also said that an administrator must have "energy to keep up a busy schedule and deal with all the requirements of the job".

Possessing a good work ethic and having good moral character. Four of the respondents also made comments that are included in this section. Mr. Magnolia told me, "The things that have helped me the most in my role as a principal are having a good work ethic. That's something I was taught by my family and I've been a hard worker ever since."

Mr. Oak told me that successful administrators would stay "involved in every area (of the school), keep them going and try to have as few dead spots as possible." He continued with the thought that a good administrator is one who is "... caring for the job and doing it the best you can do each day and communicating well with others, both teachers and parents." This is indicative of a good work ethic.

When talking about the characteristics of a good administrator, Mr. Cherry said, "I think the first one is fairness. Another is respect. If you treat your faculty with professionalism and show leadership and take them in a certain direction, and you're consistent and fair, I think that's the key." He is referring to having a good work ethic and a good moral character.

Mr. Birch, when talking about his mentors, said, "They were both men of character, well liked and respected in the community. When they told you something, you knew it was true because that's the kind of men they were."

Being open-minded and confident. Two of the building level administrators interviewed discussed open-mindedness and confidence. Their comments are included here.

Mr. Birch thought that "having an open mind and willing to look at both sides of an issue "...was an important characteristic of successful administrators." He went on to say they must be "confident enough to realize that they will make mistakes yet have enough faith in themselves and the people they work with to make a decision that will solve an issue and benefit the people involved."

Mr. Juniper told me, "When people come to my office with a question that needs an answer, I'm usually hesitant to give just a yes or a no answer, but that's what they want. I wait until I've heard the whole story.

Summarizing, the respondents all had ideas of characteristics successful administrators possess. These characteristics include skills and abilities necessary for running a school on a daily basis and dealing with the inconsistencies that arise because

of that operation. The characteristics, not listed in order of importance, include; intelligence, being friendly and good with kids, possessing a good work ethic and having good moral character and being open-minded and confident.

Chapter Summary

In this chapter, I discussed the methods of data collection. Using McCracken's (1988) four-step method, I began by drafting a set of global explore questions designed to elicit conversation from volunteer respondents who were all building level administrators of nearby schools with varying years of administrative experience. The respondents were treated to proper protocol regarding privacy and permissions for granting interviews. Interviews were conducted, audio recorded and then transcribed. These transcriptions were then searched for comments from which data on hidden areas of expertise and expertise relating to problem solving was gained. The data yielded common themes that are compiled here and analyzed in Chapter IV.

CHAPTER IV

Data Analysis

The presentation in this chapter is the data compiled in Chapter III as analyzed by comparing and contrasting it with the information contained in the "Characteristics of Administrative Expertise" topology developed by Baker and Bottoms. In the analysis, I was looking specifically for the characteristics of administrative expertise reported in the review of the literature.

Expertise and the Problem-Solving Plan

Problem solving skills and how it relates to expertise in school building level administrators is the goal of this study. One of the global explore questions asked of the respondents directly dealt with this issue by presenting a problem-solving challenge. How the interviewees responded to the challenge and how they orally developed their plan for a solution to the challenge carried much weight on the expertise level of these building level administrators when rating them in the three hidden knowledges of experts.

Leithwood et al. (1993) has told us that experts have well developed plans and clearly outline the process for problem solving. He also tells us that, as a part of the process, experts check with collaborators for interpretation yet they maintain their view

and are still open to new ideas. They keep a balance in the focus of the discussion and the need for discussion. Experts ensure that a follow-up plan is formulated and they use more problem relevant knowledge in their problem solving. What follows is my interpretation of the plans formulated by the respondents and their placement on the topology of expertise.

Novice

The individuals listed here are among the youngest administrators and among the administrators with the least administrative experience. It is no surprise then, if one subscribes to the theory that time in the domain and expertise are related, that they rated among the lowest in the area of plan development. Here is an evaluation of their plan as it was developed and told to me.

When interviewing Mr. Cherry I got the impression that he could not find a beginning point to the problem-solving challenge. He did manage to find some steps to follow seeking a solution for the challenge. His steps did not involve detail, collaboration, or a follow-up plan. He did not address the issues that implementation might bring on the school or community. Moreover, he showed little problem-relevant knowledge. Because of this, I rate him as a novice in problem solving as it relates to the challenge that was presented to him.

Ms. Cypress did not articulate a plan that was well developed and clear. She did manage to establish a few steps to go through in reaching a solution, however, she did not incorporate collaborators or stakeholders in her planning. She lacked a follow-up plan

and did not consider any implications that her plan might have upon the school or community. She indicated that she would seek advice from her established network of professionals but showed little problem-relevant knowledge of her own. I rate her in the novice level of expertise because of these facts.

Ms. Maple did not provide steps in problem-solving that were clear or complete. While it is true that she has the least experience of those who were interviewed, she did have an idea of how to begin the problem solving process. Her plan did not include detail nor did it include input from others, either collaborators or superiors. I rate her as a novice in problem-solving as demonstrated by her answer to the problem solving challenge put to her during the interview.

Post-Novice

Mr. Magnolia responded to the problem-solving challenge with a well-developed plan that provided for clear detailed instruction of his problem solving process. His plan included seeking advice from collaborators. Yet, he maintained a focus on the problem at hand. He did suggest the necessity of a follow-up plan and used problem-relevant knowledge in his process. Because of these facts, I rate his expertise at a post-novice level. He did not address the ancillary issues that a solution might incur and, although well developed, his plan did not detail all the steps outlined by the research as being necessary for arriving at a successful solution.

The response that Mr. Oak gave in the problem-solving challenge did involve steps in action planning. The steps were not well developed nor were they clear. Mr. Oak

did not seek to check with collaborators for interpretation of the problem but did seek advice from his informal network of colleagues. He further indicated that he would act on their advice. He was willing to independently solve the problem with a rearrangement of the staff. This left out discussion. He also showed a lack of using problem-relevant knowledge in his solution. Because of these facts, I ranked him as being in the post-novice of expertise.

Mr. Juniper did really well developing steps to and having a well-developed plan for a solution of the problem challenge. He considered the community in his plan and allowed them input as collaborators. He seemed open to new ideas yet maintained ideas of his own. He showed leadership and the use of problem-relevant knowledge in working with and guiding the committee to reach a plan capable of correcting the problem. He briefly thought about the issues that the implementation of a plan might have on other areas. I rate him in high post-novice level of expertise in the area of problem solving planning as demonstrated by the challenge put forth to him and by his response.

Mr. Pine accepted the problem-solving challenge without reservation. He did have steps that he used in his attempt to arrive at an equitable solution to the problem. His steps were well developed, however, they lacked interpretation of collaborators. Not until he had arrived at what he thought was the best solution did he seek permission from the superintendent. He then went to the teachers for their help with the solution. He did have a follow-up plan that was the most developed. He did show problem-relevant knowledge in the solution but had an attitude that his knowledge surpassed that of colleagues so their input was not sought. He did research on the problem and used his findings in his

solution. I rate him in the post-novice area of problem solving but it is evident that he is moving toward an expert ranking in this area of hidden expert knowledge.

Expert

Mr. Birch provided a plan, rich in detail that was well developed and very clear and concise in its steps. His plan allowed for use of collaborators' knowledge, however, he maintained his views. He indicated that he was willing to accept new ideas he felt worthy of consideration and talked of keeping a balance in the discussion while focusing on the outcome. His plan entailed a follow-up plan and he used research to enhance his problem relevant knowledge. Further, he articulated the need to consider and analyze the ancillary problems that could arise because of the implementation of his plan. Because of the completeness and detail of his plan, I would rate him as operating in the expert realm of plan development.

Summary

In plan development, the three youngest, or the ones with less experience, rated in the novice category. The post-novice ratings however, were not limited to those respondents with mid-range education and experience. Four of the respondents ranked post-novice in plan-development as it related to problem solving. Only one respondent functioned fully and operated at the expert level as it is defined and as they were ranked

by the topology developed for this study called "Characteristics of Administrative Expertise".

The following table shows the relationship between the years of administrative experience and total years of educational experience and my ratings of expertise based solely on plan development.

Table 3

Relationship Between Years Experience and Expertise in Plan Development

Respondent	Total years of educational experience	Total years of administrative experience	Expertise rating based on plan development
Mr. Birch	10 years	6 years	Expert
Mr. Cherry	6 years	3 years	Novice
Ms. Cypress	22 years	3 years	Novice
Mr. Juniper	10 years	4 years	Post-Novice
Mr. Magnolia	10 years	2 years	Post-Novice
Ms. Maple	4 years	0 years	Novice
Mr. Oak	26 years	9 years	Post-Novice
Mr. Pine	12 years	3 years	Post-Novice

As Table 3 reveals, there appears to be a relationship between years of administrative experience and level of expertise. Three of the four respondents having the fewest years of administrative experience ranked in the lowest level of expertise or in the category of novice. However, this was not always the case as demonstrated by Mr. Magnolia's level of expertise, which is post-novice, and his two years of administrative experience.

In the following sections, the respondents' expertise level is determined by comparing their responses in the interview with the Baker/Bottoms "Characteristics of Administrative Expertise" topology in all three categories of Hidden Expert Knowledge. Their levels of expertise in each of these areas will be compared with their planned development level of expertise.

Hidden Expert Knowledge

Informal Knowledge Level

One category of hidden expert knowledge according to Bereiter and Scardamalia (1993) is informal knowledge. The "Characteristics of Administrative Expertise" topology developed by Baker and Bottoms for this study defines informal knowledge as "the sum of life knowledge" which is composed of life experiences, coursework and all other aspects of living. It is educated common sense.

The transcripts of the interviews were searched for phrases providing insight into the problem-solving skills of the participating administrator. This insight allowed the data represented by the phrases to be placed onto the Baker/Bottoms "Characteristics of Administrative Expertise" topology in a level of expertise. This placement was accomplished by comparing the subjects' use of their informal knowledge in its application of their problem-solving processes. The data accumulated by the respondents' comments yielded elements of informal knowledge.

Novice Level of Informal Knowledge

Novice level administrators, according to the "Characteristics of Administrative Expertise" topology developed by Baker and Bottoms, draw heavily upon knowledge from graduate course work, teaching experience, and from the informal knowledge of their colleagues. Administrators functioning at the novice level also gain knowledge from reading within specific subject areas. The respondents who are placed in this category may be at times functioning in the post-novice level of informal knowledge but are primarily operating within the confines of the defined level for the novice. Respondents who are not mentioned here are functioning at a higher level and will be included later in this analysis.

These administrators have the common functional level of novice because they primarily gain knowledge from reading in their specialty area and they draw from experience taken from their graduate course work, their teaching experience and from the informal knowledge of their colleagues. Novice administrators rely primarily on themselves, their experiences, and not the shared experiences of others.

Mr. Cherry is young and has relatively few years experience in total. He has a total of six years in education with three of those being the assistant principal and the athletic director of a mid-size metropolitan statistical area school. He has just taken a job as principal at a small rural school when the interview was conducted. Comments he made in his hypothetical problem-solving plan suggested that he did not have a beginning point from which to solve the problem, but that somehow he would "just fix it." He later said that it would be too bad if his solution did not work but that just trying hard should

have some measure of success. He did not mention that he might call on colleagues at this point but did say that he might call upon them after one of the questions in the interview prompted him to do so. Mr. Cherry demonstrated a novice level of operation in the area of informal knowledge.

Ms. Cypress had the second most years of total experience but only a few years of administration. She finished three years as principal, which was her only administrative experience. She was employed in a small rural school when interviewed. Her experience is similar to that of Mr. Cherry. Ms. Cypress told me she would rely heavily on materials from the principal academies that she had attended for possible solutions to the problem solving challenge. Even though she could not or did not realize that she relied on her coursework, she, none-the-less, was operating at a novice level of informal knowledge by placing such a heavy reliance on the material she had encountered at the principal workshops and the knowledge she had gained from them. Another indication of working on the novice level was that she had only begun to develop a collegial network from which she could seek advice to find answers to her problems.

Ms. Maple, as the others mentioned here, had little experience. She, in fact, had just graduated, and acquired her administrator's certificate. She would be working in a part-time capacity under the watchful eye of a full time administrator. She had no experience except the knowledge she could gain from reading and from the courses she had just completed. "I would see where we need work" was a comment made by Ms. Maple, indicating that she would rely on her course work, personal experience and informal knowledge to problem solve. She did not even mention using colleagues as an information gathering resource for her problem solving. Ms. Maple also said, "I can see

the value in reading what other people have done..." which is another information gathering process in the novice area of informal knowledge. She is functioning at the novice level in hidden informal knowledge.

Respondents here are novices in informal hidden knowledge because they operate without collaboration of colleagues. They draw heavily upon their experiences and the informal knowledge of colleagues. As the novice matures in the informal category, they move from reliance on self to a reliance on others including written text. Maturing novices also combine their existing informal knowledge with new knowledge to achieve a higher knowledge. This lets them cross over into the realm of post-novice informal knowledge.

Post-novice Level of Informal Knowledge

Post-novice building level administrators in informal knowledge are able to use the tools found in the novice level and, additionally, more fully use them. These building level administrators still draw from past experience, however, they now combine their knowledge and newly acquired knowledge to form a higher level of informal knowledge. In addition, they rely on information provided by their colleagues. The respondents in this section are functioning fully at the post-novice level of informal knowledge. They have mastered and moved out of the novice level of informal knowledge.

Mr. Magnolia has few years of total educational experience and two of these years are experience as an administrator. He is starting his third year of administrative experience and his second year as principal at a small metropolitan statistical area school

when the interview took place. In the problem-solving challenge he decided on his own the cause of the problem, he did seek input from his immediate supervisor, other administrators, both within and from outside his school system and from his staff. "I would involve the key players on my staff and from stakeholders." "I like collaborative decision-making because it give the staff empowerment. It'll also give the decision more creditability..." His reasoning was that he felt it empowered his faculty and, thus, encouraged them to do better at their job. They could then take more responsibility in their subsequent actions. This mindset allows me to place him at the post-novice level of informal knowledge. In addition, he knew trusted contacts in other schools with whom he felt little anxiety in asking for help. Further, he was confident in acting on their advice. This also allows placement of him at the post-novice level of informal knowledge. Further, Mr. Magnolia liked collaborative problem solving. Because he is able to draw from experience and because he seeks and relies on input of others Mr. Magnolia is placed in the post-novice level of expertise.

Mr. Oak and Mr. Magnolia are principals in schools of similar size. Mr. Oak however, is working in a rural school. Mr. Oak was the oldest principal interviewed and the closest to retirement age. The only informal knowledge he referenced when solving the problem of raising API index scores was talking to other principals in the system. It is obvious that he relies on their experience and cherishes their advice. He says, "I've always realized the value of talking to others, especially people that I feel like are on top of what they're doing and have knowledge there from experience." This places him in the post-novice level of informal knowledge. He further indicated that he would look at the teaching staff and try to rearrange their schedule to accommodate the students' learning

experience by putting better teachers with the students who needed them the most. "I would probably re-evaluate my personnel in those subject areas to see if I needed to make some changes stock wise, ...I might have to make a change there." The students affected, of course, would be the ones who were being tested for the API index scores. This indicated that he was drawing from his past experience which also places him at a post novice-level of informal knowledge. Besides talking to other principals, Mr. Oak also voiced his opinion that he would seek outside help from a professional organization that had as a sole purpose raising the test scores of the schools they had been hired to help. "I might seek outside help. There are people who come in, look at your lesson plans and a lot of things, and try to raise your test scores." This indicates that Mr. Oak is combining new knowledge from research, including seeking sources of outside help and help from other individual principals, to form a higher level of informal knowledge. Because of these comments and the previous comments, he has been ranked as being in the post-novice level of informal knowledge.

Mr. Pine was about the same age as Mr. Oak, but he had fewer total years of educational experience in the public school setting. In the problem-solving challenge, Mr. Pine tried to reach a conclusion about the problem source and solution independently was drawing from past experience. He was seeking solutions from his experiences. Further, he relied upon research to form an opinion of the problem. "I would call the state Department and get very specific with them about the formula for the API index ..: I guess the first thing I would do is sit down with the API index and try to see where it is that we need work." This is an indication that he is functioning at the level of post-novice regarding his informal knowledge. Additionally, he was combining his informal and new

knowledges to form new higher levels of informal knowledge. This is another indication that he is functioning at the post-novice level of informal knowledge. He was a very eloquent speaker about plan making but sought permission from superiors after arriving at the conclusion he thought was the best solution for the problem. Mr. Pine said that he would get with the teachers and work out a plan. "I would go to my teachers and say, Let's take a look at what you're teaching and get a plan put together to where you know what the problem is and then create a plan to deal with it." However, in doing so, he was dependent on permission from his superintendent. I believe that before he went to the superintendent, he had already worked out a solution or a beginning plan, however. The discussion with the superintendent was then, in reality, seeking validation for the work he had done and not relying on the superintendent's input in the formulation of his problem-solving plan. Because he drew from experience and used research combined with his informal knowledge to form higher levels of new informal knowledge, Mr. Pine is rated as being in the post-novice level.

Mr. Juniper indicated that he would put together a committee to help in problem solving. "I like to involve as many stakeholders as possible in making decisions that have a major impact on the school." This and calling upon members of his principal group indicates that he seeks and relies on the advice of others. "There are several (principals) in that area that I call for advice." This also fits with his philosophy to involve as many stakeholders as possible. Mr. Juniper also shows a broadening interest in educational issues when he considers the way issues affect the community. Mr. Juniper is ranked as the post-novice level.

Expert Level of Informal Knowledge

Building level administrators who operate as experts with informal knowledge are more able to use this knowledge in problem solving. Because they have a wide knowledge base, they can see a broader vision the problem and the implications present. This fits with the topology of experts because their knowledge "encompasses the spectrum of educational issues". These administrators can apply solutions from experience and problem solving is now routine from the perspective of informal knowledge.

Mr. Birch also demonstrated an informal knowledge "that encompasses the spectrum of educational issues". He made an initial diagnosis in the problem-solving challenge and then did not hesitate to call in the teachers, inform them of the problem, and seek their input. Further, his encouragement of his staff to find other resources for problem solving by asking them to network with their colleagues at other schools. Mr. Birch was himself calling on his professional colleagues and trusted friends seeking input for the problem-solving process. He also indicated that he could find data that was research based. This process indicates that his informal knowledge was advanced to a point that he could apply knowledge and possibly find adequate solutions to the problem. "I would call in the staff tell them the problem, and tell them that we don't have much time. I'm fortunate. I've got some good teachers." He said he would ask them "… to be thinking of things that might help." This demonstrates his mastery at the post-novice level. He also demonstrates broadening interests in educational issues by telling me that he "… talked to the superintendent … and took a counselor, three department heads, and

a teacher with me to visit a neighboring school." This was in response to questions about a change that his school had undertaken. Because of his advanced applied informal knowledge, his broadening interest in these educational issues and his application of informal knowledge in problem solving, I have ranked him as an expert in informal knowledge.

Summary

Informal knowledge, although possessed by everyone, is a tool that is necessary in problem solving. The more experienced an individual is directly relates to how the knowledge is used. This is demonstrated by the ranking in the area of informal knowledge and there were three respondents at the novice level, four administrators at the post-novice level and one principal at the expert level. The Baker/Bottoms "Characteristics of Administrative Expertise" topology is dynamic and individuals ranked there are ever changing. The key to mastering an area and moving from one rank to another is sometimes hard to discern. For the move from novice to post-novice, the key is that the individual moves from a reliance on self to a reliance on others. This does not say that they cease to function as individuals, but rather, are able to discern the relative experiences worthwhile in problem solving. The key to moving from post-novice to expert is that experience has broadened to the point that their knowledge base is now large enough that they have experience in practically all areas of education.

Impressionistic Knowledge Level

Impressionistic knowledge is defined by the "Characteristics of Administrative Expertise" topology as "intuition gained from the knowledge of past experiences". This knowledge is gained from impressions leaving memories within us by events we have experienced by interacting with other humans, the environment and the perceptions of these events. It is gained along with the knowledge gained from experience. It is the moods and feelings associated with these experiences that leave us with this hidden area of expertise. The feelings operate in the background during problem solving, however, they are a part of an individual's judgment and are an inseparable part of a person's knowledge. Experts can recall information from these experiences and use it in problem solving. Those administrators who have more impressionistic knowledge are able to work through a myriad of ancillary problems sometimes created by problem solving solutions.

Using existing literature can enhance the knowledge we know as impressionistic. Also, learning from others' experiences can enhance this knowledge as well. When a building level administrator is able to see possible accompanying problems and is able formulate answers to them in the problem solution then his impressionistic knowledge is functioning at a higher level. The data was searcher for comments relating to the individuals seeing a broader application or an innovative opportunity from the problem solving challenge. This would help determine their impressionistic knowledge level.

Novice Level of Impressionistic Knowledge

Building level administrators operating in the lower level of impressionistic knowledge can see questions in the original data because of their acquired experience but are generally unable to act upon them. They know that literature alone is not the answer in problem solving but are at a loss because of lack of knowledge to proceed further. They will, many times, come up with new ideas as an approach to problem solving, however, they must rely on other's input.

Mr. Cherry used literature in his problem solving. He asked a question in the problem "Why are we on the list?" and sought an answer to the question in a novice manner by using the law book of Oklahoma. His judgment told him to try to narrow the scope of the problem by seeking a specific subject area in which his students were weak. He then intended to work only on that area in order to raise scores. His impressionistic knowledge was at work, however, it was novice level because of the limited application of the question.

Mr. Magnolia admitted that he kept up with professional journals. He did see them as inadequate in problem solving but continued to learn from them. In his plan development, he his intuition told him that committees make better decision, buy into the solution and spread the blame. Like Mr. Cherry, his impressionistic knowledge was in play, however, he did not have it developed to a point where he used it to see innovative opportunities or perceive a broader question. Because of this, I have ranked him as a novice in this knowledge.

Mr. Oak said he did not just read anything but, if it seemed intriguing, it is something he would pick up and read. Then Mr. Oak made an astute observation while discussing his problem-solving strategy when, at the end, he said," If you know that it's a do-or-die situation you're going to pull out all the stops and try to get together everything that you can and try to fix it. And then wonder why you haven't jumped on it before now and have gotten to this spot." This broader question indicates that his impressionistic knowledge is at play in this situation, however, the narrow scope of his initial question indicated that a broader application of the problem could not be possible. This places his rank as novice in the area of impressionistic knowledge.

Ms. Cypress, too, thought that the answer to the problem solving challenge was to find the weak area and to concentrate on fixing it. "That is, you will work on this section of the test for the subject area. I hate to teach the test, I think it's a shame that we have to do it but it appears to be the only thing that we can do." Because she cannot see a broader application to the problem solving solution, she ranks as a novice in this knowledge.

Ms. Maple did not supply data that could be interpreted as impressionistic knowledge.

The common strand between Ms. Cypress, Mr. Cherry, Mr. Oak, and Mr. Magnolia is that, because of the narrow scope of the initial scope of the question in problem solving, a broader application or an innovative opportunity in its solution becomes impossible. This makes me place them at a rank of novice.

Post-novice Level of Impressionistic Knowledge

In the novice level of impressionistic knowledge, the respondents did not have their judgment or intuition developed to such a degree that allowed them to see innovative opportunities within new areas that the problem solving created. The respondents also were unable to perceive broader questions and applications from the problem solving. In the post-novice level of impressionistic knowledge, the individuals all used their judgment, their intuition in problem solving development to answer accompanying questions that might arise from the solution or from the implementation of the solution. Administrators who have knowledge that is more impressionistic are also more creative when solving problems.

Mr. Juniper involves the community in an innovative manner when he uses them as a resource for information and as part of the action plan. He not only includes them in the problem-solving phase but also allows them to take ownership in the implementation phase of the solution. "Everybody works hard for the whole. You don't just have a teacher teach a class and then go home." Mr. Juniper demonstrates here that he is seeing a broader application in the solution and it is because of his judgment and intuition that he is able to do so. For this reason I have placed him in the level of post-novice in impressionistic knowledge. Mr. Juniper, seeing a broader application, used the community in an innovative way when he sought their input. He also used them as resources in the solution and allowed them to take ownership of the success that ensued from the successful completion of the problem-solving plan. His broader application is in the fact that

> "My community is good. If I need people to help in different areas, all I have to do is ask. If the committee feels that they made the decision, they will be more likely to work toward a goal and will not be prone to being negative about it to other community members."

He thought he "could bring them in as resource people to help us teach." This shows that he was seeing a larger picture than just problem solving. He was looking ahead to test monitors, resource people and the community opinion of the plan. This places him in the post-novice level of impressionistic knowledge.

Mr. Birch saw a broader question and application than other responding administrators did from the problem solving challenge. Here he talks about the accompanying problems caused by the hasty implementation of a solution.

> I tend to view a lot of decisions as management issues. What kind of schedule do we want to work with? Where am I going to have conflict? Where I am going to cause teachers problems? I think this comes from just being the principal because he solves many problems.

He then used the information to create a comprehensive solution for the problem. We know that to operate in the expert region of impressionistic knowledge a principal must work through not only the problem at hand but also a myriad of accompanying problems that could result from the wrong decision. Mr. Birch did this as a regular part of his planning in the problem solving challenge. He also listed "...looking at the credits, the eligibility requirements, changing the handbook, what to do with Vo-Tech students..." and other items that he felt was necessary before implementing the change his school had decided to adopt for the next year.

Expert Level of Impressionistic Knowledge

The expert in impressionistic knowledge can synthesize information to create a solution for a problem. The expert is more creative and is able "to look outside he box" for solutions and applications to problems. In terms of the two phases of problem solving, understanding and solving, the expert is equally adept. I did not have a building level administrator who was functioning as an expert in the impressionistic knowledge arena.

Summary

Everyone possesses impressionistic knowledge because it comes from past experiences and the reactions or impressions that we take away from these experiences. The "Characteristics of Administrative Expertise" topology developed by Baker and Bottoms attempts to isolate a way in which these impressions can be singled out by their helpfulness in problem solving. I made an attempt to place the respondents in proper categories of expertise based on their comments. Since impressionistic knowledge is derived from feelings and moods that lie behind the informal knowledge, it is even more hidden in a sense. In this category, five respondents were ranked as operating novices. Three more were ranked as operating as post-novices with no building level administrators operating on the expert level.

Self-Regulating Knowledge

The final hidden knowledge is self-regulating knowledge. Self-regulating knowledge is defined as "one's knowledge of performance requirements and the management of that knowledge". Another definition is "the knowledge needed to obtain one's goals and the management of one's self to meet those goals". It is the knowledge that an individual possesses which allows him to work toward and attain a goal. Having the knowledge necessary to solve problems and actually being able to perform the tasks when expected, marks where adequate self-regulating knowledge comes into play in problem solving. There are factors affecting the ability to control and manage one's self-regulating knowledge. These factors are what make the difference in the levels of expertise in the Baker/Bottoms "Characteristics of Administrative Expertise" topology. Experts not only possess this knowledge, but posses it in ample quantities as to be able to use it in high-pressure situations. They do so with confidence and without hesitation. This makes expert building level administrators the ones who are in control of their professional lives and manage to problem solve with little or no visible stress. In addition, these administrators can delegate authority to the appropriate people and be confident in their leadership choices.

The abilities of handling stress, being comfortable with the current position, leading with confidence, and delegating authority were the factors being sought in the comments by the respondents when looking for expertise in the area of self-regulating knowledge. Respondents were then ranked on the topology of "Characteristics of Administrative Expertise" after their comments were analyzed.

Novice Level of Self-Regulating Knowledge

All of the principals interviewed were attempting to manage stress and juggling multiple demands. To my surprise, no matter what level I rated them in expertise on the self-regulating division of the chart, they still had advanced ideas about keeping personal time and tactics for dealing with stress on the job. Additionally, they were having legitimacy issues and were learning self-critique techniques.

Mr. Cherry thought it important to be visible in the community as a professional. He said, "If you're in charge, you should really strive to be, to look and act more professional than anybody else." He also was attempting to use time management by having a written list of things to do. "I write things down, ..." It was disappointing that Mr. Cherry told me that he did not know when he was under stress, yet took a most adamant stance on dealing with stress by dividing his work and home time.

> The key for me, I don't know if I'm stressed out during the day or I can't really tell. ... when I'm not here, when I'm at home, I don't think about it. And that's important to me, my time. I told my superintendent, I'll give you 20 hours a day if you need it ... But when I'm home or when I'm not at work, ... I take my time off seriously."

He did not mention self-critique techniques, but did display confidence in doing the job required of him as principal. He was rated as being in the novice category for self-regulating knowledge.

Ms. Maple is just now entering the administrative field and is doing so in a part-time manner. When I conducted interview, school had not started and since she is the

youngest respondent and the one with the least experience, she has not had an opportunity to feel stress on the job. She says, "A good administrator must love kids and the job, ...and ... she is just now making contacts" that she "hopes can be in her network." She says that she uses time management. Another concern is that she will have full authority as a principal with duties of evaluation of other personnel; she also does not yet see herself in the role of an administrator. Because of these factors, I have ranked her as being at the novice level of self-regulating knowledge.

Ms. Cypress says that organization is one of the necessities of a good administrator and that she needs to be organized. "... so that they are prepared whenever they speak to the public, parents, or with the teachers." This indicates her willingness to deal with multiple demands and demonstrates her need for time management. However, she has not learned to delegate responsibility and thus she places more demands upon herself because of her lack of this ability. In her problem solving challenge, she came up with a solution to the problem that requires more effort that is of a personal nature. She feels that she must provide specific designs for the teachers to use in teaching the test to the students in order to raise the API index at her school. This endeavor will take considerable time and personal resources. In an already busy schedule, this will place demands on her even with her attempt at time management. Ms. Cypress believes in professional visibility and feels that it is a two way street. "So being visible says ... I'm going to show you that I care about you as an individual." Ms. Cypress also expressed her desire to change schools in the next few years to another position elsewhere. "I'll only be here another year or two at he most, then I am going to get a job at a larger school." This could demonstrate a lack of confidence in her professional life as a building level

administrator in her present school, or it could mean that she is just willing to move in order to get a better job. Because of these factors, I have ranked her as being at the novice level of self-regulating knowledge

Post-novice Level of Self-Regulating Knowledge

Mr. Birch accepts problem solving without reservation. He chooses to acquire new formal knowledge by choice. Moreover, he shows little legitimacy anxiety and, thus, has increased focus. There is only one legitimacy concern that became known in our conversation. He said, "I said a lot of times that the building level administrator's job is not a bad job, but it's not a job that was made for me." If this does not represent a legitimacy concern then it is one of fundamental growth allowing him to seek higher, more prosperous jobs within education. Mr. Birch also takes on a leadership role as demonstrated when he brings together his staff, provides them with information, and makes them a part of the problem-solving process. He can delegate responsibility and is confident in the people he has hired and in which he places his trust. He is a confident leader, however, he does not project overconfidence. While it is true he can see himself in other roles, he is content with his professional life and the direction it is taking. He sees visualize himself as a professional in his present role but aspires to a higher role in educational administration. This rates him high in the post-novice arena of self-regulating knowledge.

Mr. Magnolia, although accepting leadership and the problem-solving challenge without reservation, still shows legitimacy anxiety by using the committee as part of the

blame "... if something blows up then the blame is not squarely on your shoulders." He has developed professional networks and uses them when necessary. He made an astute observation about people, teachers and administrators, needing to always continue to learn. Mr. Magnolia also had plans for dealing with stress. "I get out and play golf." He shows a legitimacy concern, however, of seeing himself in the role as building level administrator and leader of the school. "If I am questioned from outside, I would give that info (from the superintendent) back to the parent or concerned party." He demonstrated this when he thought it necessary to have the exact quote from the superintendent should he be questioned by outside sources on a decision that the superintendent made that was contrary to the decision he would have made. Mr. Magnolia was comfortable in his role and did not see himself advancing or changing schools in the near future. Because of these facts I rate him as being in the post-novice arena of self-regulating knowledge.

Mr. Pine also ranked in the post-novice category of self-regulating knowledge. Mr. Pine is pro-active in analyzing the cause of stress and in doing something about it. "... you don't look too far ahead when you're in a stress situation. If you try to look too far ahead it's going to overwhelm you." He is continually acquiring new formal knowledge by choice. "But I do read books on education. Stuff by Howard Gardner on brain-based research." He is confident in his job and has little legitimacy anxiety about it. For these reasons, when comparing his comments with the Expertise topology, I rated him as a post-novice in the area of self-regulating knowledge.

Mr. Juniper shows self-regulating maturity by coming to the realization that people are not deliberately seeking him for personal harm and slander but are coming

after the "person behind the desk." He does admit that he feels the stress from the position he has taken. Mr. Juniper also shows the most expertise in his development of a professional network due in large part because of his regular building level administrators' meetings. He has formed a network of contacts both personal and professional that he keeps in touch with and calls upon when necessary. He has accepted leadership and problem solving without reservation. He is also seeking a degree beyond that which is required to be a building level administrator. I have rated him as being in the post novice-level of self-regulating knowledge.

Mr. Oak accepts his problem solving without reservation. He is confident in his leadership ability and in his power to solve problems. This is indicated by the fact that he expresses that he can rearrange the staff without seeking permission from or guidance from the superintendent. He did not express the need to seek permission from the superintendent or board of education to make these changes. Mr. Oak dealt with stress by not taking things seriously. "I try not to take anything real seriously." Humor is one of the most common approaches mentioned in the review of the literature (Swent, 1983, p. 71). He also admitted that he felt as though he was under stress much of the time and that he internalized that stress quite a bit. He dealt with the problems of having too much stress by removing himself from the school climate for a few minutes while he walked around outside and collected his thoughts. A legitimacy issue for him was that if he made a mistake that his job could be in jeopardy. He felt more confident in his role now that he has reached retirement age. I rated him as functioning in the post-novice level of self-regulating knowledge.

Expert Self-Regulating Knowledge

Experts in the self-regulating area of knowledge are in complete control of their professional life. This means they choose where to work, how long to work at a location, and are not afraid of losing their job or in finding another one. They also attend professional seminars and seek professional growth because of a genuine interest in education and how it affects them professionally. Experts can delegate responsibility and are not overly concerned with the outcome because they have handed it to other professionals. This is also part of taking on a leadership role with confidence. Although experts may aspire to different positions, they have confidence in and are content with their current professional life.

There were no experts in my ranking of the school building level administrator respondents.

Summary

Studying the eight subjects, I found that only three building level administrators rated as being in the post-novice level of self-regulating hidden expertise and five rated as being functional at the novice level. Five respondents rated as functioning at the post-novice level. No respondents were rated as being in the expert category and functioning fully there as it relates to problem solving.

The respondents seemed most efficient in handling stress and in incorporating ways to cope with stress already embedded as a part of their philosophy. The youngest

and those with the least experience were having the most legitimacy issues and were not able to see themselves in their role.

Most of the respondents felt it necessary to continue their education and most were willing to learn and discover new formal knowledge. Some of the interviewees found it difficult and, thus, struggled with the problem solving challenge. This left them in the novice category. All of the respondents had begun to develop professional networks in addition to their informal networks for their use in problem solving.

The fact that there were younger and less experienced building level administrators in my group of respondents may have contributed to the lower ratings on the Baker/Bottoms "Characteristics of Administrative Expertise" Topology. The building level administrators with the most experience however, did not always have the higher ratings. In general, each of the respondents had a good deal of self-regulating knowledge and each is poised to move soon to higher levels of expertise.

The next table shows how the respondents rated using the Baker/Bottoms "Characteristics of Administrative Expertise" topology.

Table 4

Ratings of Respondents in the Three Areas of Hidden Expert Knowledge

	Informal	Total Exp	Adm Exp	Impressionistic	Self-regulating
Level 1 Novice	• Mr. Cherry	6 yrs	3 yrs	• Mr. Cherry	• Mr. Cherry
	• Ms. Cypress	22 yrs	3 yrs	• Ms. Cypress	• Ms. Cypress
	• Ms. Maple	4 yrs	0 yrs	• Mr. Magnolia	• Ms. Maple
				• Ms. Maple (NR)	
				• Mr. Oak	
Level 2 Post-Novice	• Mr. Juniper	10 yrs	5 yrs	• Mr. Birch	• Mr. Birch
	• Mr. Magnolia	10 yrs	2 yrs	• Mr. Juniper	• Mr. Juniper
	• Mr. Oak	26 yrs	9 yrs	• Mr. Pine	• Mr. Magnolia
	• Mr. Pine	12 yrs	3 yrs		• Mr. Oak
					• Mr. Pine
Level 3 Expert	• Mr. Birch	10 yrs	6 yrs		

Chapter Summary

The chapter began with a comparison of the problem solving plan development of the respondents as compared to that recognized in the review of the literature. When rating the problem-solving plan articulated by the respondents, I found that only one ranked in the expert category while three were in the novice level and four were rated as post-novice problem solving plan developers.

I analyzed the data revealed in the interviews and reported in Chapter III to determine the level of expertise into which each respondent fell in the areas of informal, impressionistic, and self-regulating knowledge as determined by the "Characteristics of Administrative Expertise" topology. Only one building level administrator was placed in the expert level, while four were functioning as post-novices and three ranked as functioning as informal knowledge novices. Regarding impressionistic knowledge, only three ranked as post-novices while all others feel into the novice category. There were no building level administrators ranked as functioning at the expert level of impressionistic knowledge. Finally, in the self-regulating category I found five of the respondents were functioning in the post-novice level while three ranked as functioning at the novice level of self-regulating knowledge as defined by the "Characteristics of Administrative Expertise" topology.

CHAPTER V

Summary, Conclusions, Commentary, Recommendations and Implications

Included in this chapter are discussions containing a summary, conclusions, recommendations, implications and a short commentary that resulting from the collection of the data for this study. The collection of the data was accomplished by using the long interview method.

Summary

Exploration into the problem-making expertise of building level administrators was the rationale of this study. To accomplish this purpose I used the following steps:

1. I examined the problem solving strategies, of current school building level administrators.
2. I viewed the skills of the problem solving experience of administrators using a topology of expertise consisting of three categories: Novice, Post-novice, or Expert.
3. I assessed effectiveness of the "Characteristics of Administrative Expertise" topology which was designed for use in this study as an aid in ranking levels

of informal, impressionistic and self-regulating knowledge possessed by building level administrators.

4. I described any other realities revealed during this research.

The accomplishment of the purpose was met by:

1. the collection of data from eight rural or metropolitan statistical area building level administrators using long interview procedures
2. data presentation of (a) demographics, (b) problem-solving plan making, (c) essential administrator knowledge bases, and (d) data analysis through a comparison of the data supplied by the administrators with "Characteristics of Administrative Expertise" topology.

Data Needs and Sources

Data from rural and metropolitan statistical area building level administrators were needed for achieving this study's purpose. Interviews, composed of opened-ended questions were conducted with these building level administrators to gather data on administrator characteristics, problem-solving processes, and self-regulating tendencies.

Eight building level administrators from rural or metropolitan statistical area school districts supplied the data for this study. Six males and two female, with a mean of 12.4 years of total educational experience and a mean of 3.75 years of administrative experience were interviewed. The respondents who participated in the study did so voluntarily.

Data Collection

McCracken's (1988) method for the long interview was used for the collection of data. Interviews of approximately one hour in length were conducted using five global explore open-end questions. Techniques designed to explore deeper into the data was used to collect additional data. The respondent was allowed to choose the site for the interview. The respondent also chose the time for the interviews. The time was reported to me as being off-duty or non-paid time. Since most of the interviews were conducted in the summer months and schools were not in session, the volunteers were gracious for allowing me the use of their time. Choosing the site allowed them to feel as comfortable as their surroundings would allow. The global explore questions were designed to gather data on administrator problem solving skills, knowledge bases essential for administrator success and legitimacy issues among administrators.

A description of the study was the basis for the beginning of the interview. Then questions from the respondents were sought to further explain the study, the confidentiality and goals. Then questions pertaining demographics of years of total experience in education and administration along with administrative positions held were asked.

Data Presentation

Before developing the global explore questions and the data collection began, a review of the literature was conducted. This review shows that a limited amount of data is

available for expertise and even less as it relates to public school administrator expertise. The interviews were conducted and audio recorded. After the interviews, the audio recordings were transcribed. An examination of the transcriptions was conducted and the data placed in the following categories:

Problem-solving plan. The demographics showed a wide variety of experience among the interviewees. Men, it seems, more often hold the position of building level administrator, especially at the higher levels, than women. However, each administrator, regardless of experience, began a plan to the problem challenge. Some of the plans were more developed than others, which prompted me to also include in the analysis a rating for plan development, based on the review of the literature and on the comments made while their plan descriptions were being formulated.

Essential administrator knowledge bases. Comments made by the respondents led me to believe that the characteristics they listed as being necessary for a successful administrator were, in actuality, more than that. These "stronger" characteristics became knowledge bases that are essential for success as a building level administrator. Besides having innate intelligence they are: 1) the right kind of knowledge for the job including knowledge of communications and dealing with people, 2) the knowledge gained from experience which was brought to administration from a teaching background or from the proper course work and from hands-on experience, and 3) seeing the big picture, be involved with and take ownership of all areas of education, including being professional and being visible and being knowledgeable about personal time management. These areas

surfaced and resurfaced in the data as characteristics possessed by mentors, characteristics of those successful administrators admired by the respondents and the characteristics that the respondents felt they possessed or needed to develop more fully.

Data analysis. The comments made by the respondents were coded, catalogued and analyzed to rank, or rate, the respondent as functioning in the novice, post-novice or expert level in the three areas of hidden knowledge.

Analysis

The collection of data, from all respondents, was accomplished through the long interview procedure. A deductive analysis followed placing the data in categories of from the comments made by the respondents during the interviews. The final step was an analysis of that data resulting in ranking the respondents in the three areas of hidden expert knowledge (informal, impressionistic, and self-regulating) as defined by the Baker/Bottoms "Characteristics of Administrative Expertise" topology.

Findings

One noteworthy finding of the study was the evaluation of the Baker/Bottoms "Characteristics of Administrative Expertise" topology. In using the topology as an instrument of evaluation of expertise, problems arose when the determination of an individual's rank was in the borderline or was in two levels as defined by the topology.

This occurred in ranking three individuals. The effectiveness, however, was not diminished in the other areas of hidden knowledge and an overall picture of the respondent expertise still emerged. Refinement of the factors used as descriptors may be necessary when evaluating an individual who is functioning in between levels in multiple categories of hidden knowledge.

The data garnered from the interviews allowed all of the respondents to be ranked as functioning at a specific level of expertise in novice, post-novice, or expert for each of the three areas of hidden expert knowledge: informal, impressionistic, and self-regulating, as defined by the Baker/Bottoms "Characteristics of Administrative Expertise" topology.

I found that three individuals ranked as being in the informal area of hidden knowledge. In the same area, four respondents were ranked as being on the post-novice level. In the area of informal hidden expert knowledge, one respondent ranked as functioning at the expert level.

In the area of impressionistic hidden expert knowledge, I found four respondents to be ranked in the novice area and three functioning in the post-novice area. I did not have enough information from one respondent to make a determination in this area.

In self-regulating hidden knowledge, I found three respondents to be functioning as a novice. In the same category, five of the respondents were functioning as post-novice.

The following table is a compilation of that data.

Table 5

Ratings of Respondents in the Three Areas of Hidden Expert Knowledge

	Informal	Total Exp	Adm Exp	Impressionistic	Self-regulating
Level 1 Novice	• Mr. Cherry	6 yrs	3 yrs	• Mr. Cherry	• Mr. Cherry
	• Ms. Cypress	22 yrs	3 yrs	• Ms. Cypress	• Ms. Cypress
	• Ms. Maple	4 yrs	0 yrs	• Mr. Magnolia	• Ms. Maple
				• Ms. Maple (NR)	
				• Mr. Oak	
Level 2 Post-Novice	• Mr. Juniper	10 yrs	5 yrs	• Mr. Birch	• Mr. Birch
	• Mr. Magnolia	10 yrs	2 yrs	• Mr. Juniper	• Mr. Juniper
	• Mr. Oak	26 yrs	9 yrs	• Mr. Pine	• Mr. Magnolia
	• Mr. Pine	12 yrs	3 yrs		• Mr. Oak
					• Mr. Pine
Level 3 Expert	• Mr. Birch	10 yrs	6 yrs	•	•

Conclusions

I made some interesting conclusions about the building level administrators who were participants in this study. First, it seems that experience at the administrative level does play an important part in determining their expertise level in problem solving. This was demonstrated by the fact that the building level administrators with the most experience, in general, scored higher than the building level administrators with the lesser years of experience. The two respondents with the least total years experience, Mr. Cherry and Ms. Maple, ranked as Novice in the area of informal knowledge. The respondents with median total years experience, Mr. Juniper, Mr. Magnolia, and Mr. Pine, ranked in the Post-Novice area of informal knowledge. There were some exceptions to this finding that are unexplainable by just considering the experience and the rating of expertise. Mr. Birch, a median in terms of total years experience, ranked as Expert in informal hidden knowledge. Ms. Cypress, an anomaly, with a large number of years of total experience, ranked as a novice in informal knowledge.

Impressionistic knowledge seems to be related to informal knowledge by more than mere coincidence. In all but two respondents, Juniper and Pine, the ranking was lower for impressionistic knowledge than it is for the informal knowledge. Mr. Pine had another career before entering education and was among the oldest group of respondents. This could account for the heightened sense of impressionistic knowledge. Mr. Juniper was a coach for many of his first years as an educator that could have contributed to his impressionistic knowledge level. But there were other coaches in the group of respondents.

Building level administrators in this study did not rate in the highest category often and were in the lower levels of expertise. This could be due to advancement of the individual as knowledge levels improve. The building level administrators could move to the assistant superintendent or superintendent positions. Another consideration is the possibility that my group of respondents did not have as much experience as the general population of school building level administrators. Building level administrators were chosen with varying degrees of experience for this study, including two individuals with no experience. One was in a part time position and the other was a building level administrator on his first day of a new job as building level administrator. During the interview the later told me that his previous position as assistant building level administrator was in name only and that primarily his duties were of nature that had little to do with the job of assistant building level administrator as such. The information provided by these individuals may have affected the outcome of the study.

Impressionistic knowledge, by its very definition, is knowledge that lies behind the informal knowledge in individuals. It is the feelings, thus "impressions" caused by and left with us by experiences. Because of this, it is harder to determine and quite possibility harder for the individuals to consciously use when problem solving. Because of this fact, impressionistic knowledge should have been no higher than the informal knowledge levels of the individuals who participated in the study. This case was true in all instances, except for two individuals who had the same ratings in the areas of impressionistic and informal knowledge.

Self-regulating knowledge is a knowledge that is independent and unrelated to the other two kinds of knowledge. This was apparent in the fact that all of the respondents

had very good mechanisms in place to deal with stress. Whether, or not, they can actually use these to avoid or lessen their stress on the job is another study; however, all had thought about it or experienced enough stress to develop these plans for dealing with, avoiding and reflecting about their stress. Another fact is that all of the respondents seemed to be, and certainly presented themselves to be, very confident in their abilities to perform the duties necessary to have success in the job of building level administrator.

Stress and confidence, in the Baker/Bottoms "Characteristics of Administrative Expertise" topology, affects the level of expertise because either can hinder the building level administrator's development of the knowledge necessary for managing themselves to obtain their goals. Self-regulating knowledge is the knowledge used to know how to manage one's self to the point to obtain goals. Setting goals and managing activities and events well enough to obtain them are very different aspects of knowledge. Many times things happen in the life of a building level administrator that make it more difficult to reach preset goals. The topology, for example, tells us that a building level administrator should be able to delegate responsibility. This is necessary in improving his rank self-regulating knowledge. Time management helps but can be set aside when unexpected events occur. This sets the levels of expertise apart. An expert is comfortable, confident and in charge of his own professional life while a novice is just beginning to develop these characteristics.

Another concept possibility affecting building level administrators and the rating of expertise is that building level administrators, almost without exception, answer to a person with higher authority in the school setting, usually the superintendent. Because of this fact, building level administrators may score lower on expertise charts in areas

related to problem solving. Sometimes they cannot make those ultimate decisions that affect them and their schools. Therefore, it may be natural that building level administrators score lower on expertise charts.

Implications and Recommendations

I hoped this research would meet three goals: 1) clarify existing theory, 2) increase the knowledge base, and 3) impact practice. The next sections discuss how this study meets these criteria.

Theory

Administrators all have knowledge bases that they bring with them to the job. While on the job, their knowledge base is ever broadening and continually growing because of the experiences they encounter while functioning in the capacity of building level administrators. The knowledge base is made up of the hidden areas of expertise described by Bereiter and Scardamalia (1993) as informal, impressionistic and self-regulating knowledge. Until recently, these types of knowledge were not known to exist and had not been studied extensively. This research has clarified the theory by taking the concepts of Bereiter and Scardamalia and adapting them to the Baker/Bottoms "Characteristics of Administrative Expertise" topology and finally applying these concepts to the expertise of building level administrators.

Hidden knowledge did exist in the building level administrators that volunteered as respondents. These knowledges were sometimes difficult to discern in individuals and sometimes even harder to rank on the topology of "Characteristics of Administrative Expertise". Another factor was that since individuals are fluid, their ranking could change depending upon the importance they placed on and how sincerely they participated in the interviews.

To further clarify the theory, a recommendation for future research is to collect data from similar groups of administrators. Similar groups are: 1) the same years of total experience, 2) the same years of administrative experience, 3) work in the same size schools 4) be the same gender, 5) be the same age, and other similar groupings. A pattern of how expert-like behavior develops may then be determined. Rankings on the "Characteristics of Administrative Expertise" topology may then be more revealing. Studies conducted in this manner could focus on one variable. If any of this research determines that levels of hidden expertise are different, it will add to the theory and help determine the practicality of expertise ranking.

Research

By documenting the problem-solving processes of building level administrators, the knowledge base was increased. While not the sole determining factor, the levels of expertise in building level administrators seemed to follow directly the expertise displayed in problem solving processes while responding to the problem solving challenge. Since research into this area of expertise is inadequate, studies of this nature

may be worthwhile in adding to the research base on expertise. Research for building level administrators may be applied to areas of administration in different domains.

Future researchers can apply the ranking topology to members of two domains and compare the hidden knowledge of each. Suggestions could then be made regarding general populations of administrators. A comparison of the administrators in the public arena such as building level administrators, elected public officials, etc with the administrators in the private sector, such as bank presidents, CEO's, etc would prove to be useful in assessing hidden expert knowledge and how it may apply to the work place.

In this study, the respondents came from both rural and metropolitan statistical area school districts. Future researchers could compare administrators in only large schools or in only small schools. Expertise could then be compared to salary. Other suggestions would be to compare the requirements for certification in two or more state and determine what impact if any that played on expertise.

Another suggestion for a study could help validate the "Characteristics for Expertise" topology. This study would include failed and unsuccessful building level administrators. Other studies could include teachers, members of boards of educations and other similar groups involved with education in both the public and private sector.

Practice

Data from this study suggest that building level administrators generally possess lower levels of expertise on the Baker/Bottoms "Characteristics of Administrative Expertise" topology in the areas of informal, impressionistic, and self-regulating

knowledge. I hope that it is, however, more than the average public person possesses, else someone with little on no educational background might possible do the job. Another study might clarify this by comparing community members and their hidden expert knowledge with building level administrators.

Commentary

The data from this study shows us that some building level administrators are not expert in the levels of hidden expert knowledge. However, they are performing and succeeding at their present jobs and as we have seen, many are climbing the administrative ladder of success in public schools. Because each building level administrator exudes confidence in themselves and the job that they do, then the role they have taken is also a learning role, an on-the-job training program. Even though not thought of in this manner, because the knowledge studied and its hidden nature, it is however, on the unconscious level a training ground where experiences add to the knowledge base of the building level administrators.

Informal knowledge grows as education, life experience and shared understanding grows. Working in any area improves informal knowledge. Informal knowledge is linked to impressionistic knowledge bi-directionally. If the impression is negative, it can affect learning negatively. A person's confidence may also affect the ability to gain informal knowledge.

The data also shows us that there is a direct link between the informal hidden knowledge and the impressionistic hidden knowledge. Since the impressionistic

knowledge is formed as a direct result of the experiences a person has then it can grow only as the informal knowledge of that person grows. Thus, only a very insightful person might have a heightened sense in the impressionistic knowledge when compared to the informal knowledge. Experts might have this sense so developed. Therefore, it is possible that when a person is operating at the expert level it is difficult to distinguish the actual performance level of their impressionistic knowledge. None-the-less, a link exists between these two areas of hidden knowledge.

Self-regulating knowledge is independent from the informal and impressionistic knowledge discussed by Bereiter and Scardamalia (1993). In the Baker/Bottoms: Characteristics of Administrative Expertise" topology, it is assumed that influences felt by administrators can hinder the development of this hidden knowledge. These influences are stress, dealing with stress, and self-worth – confidence issues. Knowing how to solve problems is not enough when building level administrators are placed in highly charged, emotional, or other high stress situations. When the stress keeps the building level administrator from making timely, relevant decisions as solutions to problems then his self-regulating knowledge is not as mature. The knowledge of how to solve problems and actually arriving at the solution during high stress situations separates the individuals on the expertise topology represented on the Baker/Bottoms "Characteristics of Administrative Expertise" topology.

In conclusion, since the three areas of hidden knowledge have been shown to be interdependent and independent simultaneously, it seems certain that more study is needed to clarify the relationships to one another and to the role they actually play in expertise.

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Appendix A

Global Explore into Expertise

Global explore questions into expertise:

1. What do you believe makes a good administrator? Why?

   What qualities have you seen in an administrator who you consider to be an expert in administration?

2. How have you learned what it takes to be a good administrator?

   a. How do you know what information is important?

   b. How do you organize your work?

   c. How do you know how to regulate your work?

3. Have these ideas changed over time?

   d. If so, why? In what ways?

   e. If not, why?

4. How does what you have told me fit with the philosophy of education that you enjoy?

   a. Tell me how you self-reflect and how do you handle stress?

5. As you know, schools, administrators, teachers and students are being held more accountable than ever before. An example of this is the "API" index score. Suppose your school has been placed on the "Low Performing Schools" list and this is the final year to improve or lose local-control of your system. Describe in detail the process you would use to improve the API scores in your school and discuss the impact the changes will have on you, your staff and the community.

Appendix B

Telephone Script

Script: Hello. My name is Keith Bottoms and I am currently enrolled at Oklahoma State University as a graduate student. I am doing research on the problem-solving expertise of building level administrators. This research involves interviewing area building level administrators about their problem-solving role and how they go about making decisions. I would like you to participate in the study and can assure you that information supplied by you will be kept confidential and results of the interview will only be discussed as group data. No identification of individuals will be made. Can we schedule a time for an interview or do you have any questions about his study that I can answer now?

Appendix C

Informed Consent

A. AUTHORIZATION

I, _____, HEREBY AUTHORIZE OR DIRECT Keith L. Bottoms
Respondent
To interview me in conjunction with his research on principal administrative expertise. This research is being conducted through OSU. The Principal Investigators are Keith L. Bottoms, a doctoral student and Adrienne E. Hyle, a professor in the School of Educational Studies in the College of Education.

The purpose of this study is to explore the decision-making expertise of school administrators.

Interviews are the data collection method of choice. Each participant will be interviewed and tape-recorded during in-depth and some shorter follow-up interviews. Interviews will consist of a minimum of one 45 minute session. Interviews begin with demographic questions and expand to open-ended questions designed to illicit responses that can be coded and placed on an expertise topology designed for this study. Interview questions will be used to extract the hidden levels of expert knowledge as defined by Bereiter and Scardamalia (1993) and modified for the study by Alan Baker and Keith Bottoms. The calendar time for collecting the data is approximately four months.

Participants will be asked to provide personal information before the interview. The interview protocol asks personal questions about administrative experiences and background of participants in order to determine the nature of hidden expertise. This information will be kept in a locked office and locked cabinet. I, Keith Bottoms, will have the key. My advisor Dr. Adrienne Hyle will keep drafts of the thesis in a locked file cabinet. Files will be stored separately from any identifiers. Files will be shredded upon completion of the project. Any computer information will be stored with password protection and will be deleted upon completion of the project. No risks to participants are anticipated. The responses of the participants are those related to the hidden levels of expertise and their job duties as administrators in public education institutions.

This research provides insight into the decision-making skills of administrators from the view of the hidden areas of expertise. Additionally, this study gives selected administrators the opportunity to reflect about acquired expertise skills. The information in this study will be valuable to research, practice and theory. The possibilities for this study include raising the self-esteem of administrators and improving their ability to reframe their self-awareness in their administrative job duties.

For questions about the research, please contact:

Adrienne E. Hyle, Professor
Oklahoma State University
106 Willard Hall
Stillwater, OK 74078 Phone: 405-744-9893

Keith Bottoms, Educational Administrator retired
2222 S. 82nd E. Ave
Tulsa, OK 74129 Phone: 918-641-0821

Sharon Bacher, IRB Executive Secretary,
Oklahoma State University
203 Whitehurst
Stillwater, OK 74078 Phone: 405-744-5700

I understand that participation is voluntary and that I will not be penalized if I choose not to participate. I also understand that I am free to withdraw my consent and end my participation in this project at any time without penalty after I notify the project director, Adrienne Hyle, at the address or phone number noted above.

I have read and full understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

DATE: _____ Time: _____ (a.m./p.m.)

Name: _____ Signature: _____

I certify that I have personally explained all elements of this form to the subject before requesting the subject to sign it.

Signature: _____
Keith Bottoms

Appendix D

Institutional Review Board Approval

Oklahoma State University
Institutional Review Board

Protocol Expires: 1/28/2004

Date: Wednesday, January 29, 2003 IRB Application No ED0366

Proposal Title: DECISION - MAKING EXPERTISE OF PUBLIC SCHOOL PRINCIPALS

Principal Investigator(s):

Keith Bottoms
112 W Albuquerque
Broken Arrow, OK 74011

Adrienne Hyle
314 Willard Hall
Stillwater, OK 74078

Reviewed and Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

Dear PI :

Your IRB application referenced above has been approved for one calendar year. Please make note of the expiration date indicated above. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved projects are subject to monitoring by the IRB. If you have questions about the IRB procedures or need any assistance from the Board, please contact Sharon Bacher, the Executive Secretary to the IRB, in 415 Whitehurst (phone: 405-744-5700, sbacher@okstate.edu).

Sincerely,

Carol Olson

Carol Olson, Chair
Institutional Review Board

VITA

Keith Lee Bottoms

Candidate for the Degree of

Doctor of Education

Thesis: PROBLEM-SOLVING EXPERTISE OF BUILDING LEVEL ADMINISTRATORS: A QUALITATIVE STUDY

Major Field: Educational Administration

Biographical:

Education: Graduated from Fort Gibson High School, Fort Gibson, Oklahoma in May 1968; received Bachelor of Science degree in Education, Math and Elementary Education from Northeastern State College, Tahlequah, Oklahoma, July 1973; received Master of Science in Counseling from Northeastern State University, Tahlequah, Oklahoma, July 1979; received Specialist in Education from Oklahoma State University, Stillwater, Oklahoma, 1997; received Doctor of Education from Oklahoma State University, Stillwater, Oklahoma, December, 2003.

Experience: Teacher, Middle School math and science, McDonald County Schools, Anderson, Missouri, from 1973 to 1976; teacher, high school math, Wagoner Public Schools, 1976 to 1988; Counselor, Wagoner High School, Wagoner, Oklahoma, 1988 to 1999; Superintendent, Plainview Elementary School, Texhoma, Oklahoma, 1999 to 2001.