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A Communication Methodology Focused on Ecological Unitizing
Designed to Enable Upper Elementary School Students
to Generate Their Own Appropriate Learning Goals

by

Dorothy Menousek

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Abstract

A Communication Methodology Focused on Ecological Unitizing
Designed to Enable Upper Elementary School Students
to Generate Their Own Appropriate Learning Goals

by Dorothy Menousek

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This dissertation creates and tests a communication methodology, focused on ecological unitizing, designed to enable upper elementary school students to generate their own appropriate learning goals. A communication methodology provides a mechanism by which persons can design their own communication practices (methods, strategies, options) to meet the demands of situations for which the communication methodology is constructed. When ecologically unitizing, an active perceiver views a chosen situation holistically for a particular purpose by discovering and selecting pertinent information elements and the relationships among them necessary to describe the situation. This dissertation focuses on teachers and students as active communicators who use a communication methodology to discover, adapt, and integrate many pertinent fragments of accessible information into ecological units to enable students to generate their own learning goals.

The perspective of human communication underlying this research links Buber's dialogic perspective of *making the other present* (Friedman, 1976) with Foss and Griffin's (1995) Invitational Rhetoric and with Maturana and Varela's (1970, 1987) biological perspective which explains the communication of social life as human structural coupling. These perspectives are linked by Krippendorff's (1993) emphasis on cognitive

autonomy, reflexive communication and moral responsibility.

The communication methodology as designed was tested with fourth through sixth grade students from August 1996 through March 1997. Eleven children participated in 14 semi-structured interviews. Data was analyzed in the qualitative cognitive tradition, using the constant comparative method (Glaser, 1967) to move between coding and theoretical categories. Extensive exemplification is included.

A communication methodology provides a generator through which the communication methodology works. The generator in this communication methodology, the Interrogational Function, includes a question word (who, what, when, where, why, how) and a focus on one or more factor of Burke's (1975) Pentad (act, agent, agency, purpose, scene). A child's information about self, background, and interests is coded into the categories of agent, purpose, and scene. The relationships the child describes among these elements are viewed as agency, the means through which the child creates the learning goal. The child focuses and tightens his or her ecological units, successfully producing the learning goal, the child's act of creation.

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Chapter I: Introduction

Genesis of the Study

I want my diverse elementary school students to be successful, independent learners, developing achievement-appropriate and age-appropriate maturity in pursuit of their learning needs. When I first began teaching, in the early 1970s, I was interested in *my* success as a teacher, pouring myself into creative approaches to curricula, trying to gain student cooperation and ensure learning by talking, hearing answers, evaluating, and watching my students perform. In those days, relying on challenging curricula to promote student involvement, I lacked awareness of how to foster each student's commitment to learning (Bois, 1978).

In the early 1980s, I immersed myself in language and culture studies in Turkey and taught English as a Second Language. These cross-cultural experiences drew my attention to the impact of our communicative relationships on my own and my students' learning.

Later, back in the elementary classroom in the United States, I began to listen more to my students. I was finding that *my* assumptions limited my understanding of students' learning needs. I began asking my students questions: "What happened? May I help you? What are you doing?" They began to explain to me what they were learning and how they were learning. I was learning from my students (Carroll & Christenson, 1995; Siu-Runyan, 1994).

For the last ten years, my graduate studies and teaching duties have mingled together. Communication studies focused on research, communication theory, and transactional communication, blended with research on teaching focused on teacher knowledge, thinking, and

communicating with students thoroughly dislodged my old top-down perspectives about my role in students' learning. I now seek to enable my students to pursue autonomous and creative authenticity, to increasingly manage their own learning, and not just conform to a teacher's authority (Fenstermacher, 1983). This dissertation focuses on my communicative relationships with my students, and student peer communication, which help students choose and pursue learning goals. This dissertation, therefore, is not focused on selection, use, or critique of curricula, nor on specific teaching methods used to foster student success. It is not focused on discipline, nor scheduling, nor standardized forms of student evaluation. It does not focus on barriers to learning. It does not primarily deal with mastery of grade level skills, nor with administrator-teacher or other adult relationships at school. This dissertation was designed to fill an empty niche, to provide a strategy to create options for teaching children to generate their own interesting and satisfying learning goals, and so help them avoid learning how *not* to learn (McDermott, 1974).

Statement of Purpose

The purpose of this dissertation was to create and test a communication methodology, focused on ecological unitizing, designed to enable upper elementary school students to generate their own appropriate learning goals.

The terms used in this statement of purpose--communication methodology, ecological unitizing, designed to enable, upper elementary school students, generate, and appropriate learning goals--are explained in the following sections. These sections are limited to defining and explaining the terms in my purpose statement. A critical survey of literature pertinent to

the development of this dissertation follows. After that, I link three perspectives of human communication to describe the communicative relationships between teachers and students which I believe foster successful, independent learning. In Chapter 2, I ground the design of my communication methodology in that set of perspectives, and develop the research plan. Chapter 3 describes the results, and Chapter 4 includes the discussion, conclusions, limitations and recommendations.

Communication Methodology

Definition. In this dissertation, I design and test a *communication methodology*. Methodology is sometimes used to mean "a series of steps to be followed" (Stewart, 1993). Brinberg and McGrath define "the methodological domain" of research as "techniques that are the means by which we gather, process, and interpret information about substantive phenomena" (1985, p. 16). Elwood Murray apparently originated the construct, communication methodology, as "the link between our knowing about communication and our putting this knowledge to use" (Akin, Goldberg, Myers, & Stewart, 1970, p. 11), which can be "devoted to the discovery and testing of methodologies designed to facilitate human interaction" (p. 17). These definitions range from "checklist" to "techniques" to "relationship," yet none is appropriate for this dissertation.

In choosing the construct, communication methodology, I mean something different than a *method* or an aggregate of methods, different than a way of doing research, different than a way of generating arguments, and different than a link between knowing and doing. Watzlawick, Weakland, and Fisch (1974, p. 8) compare the terms method and methodology in a way congruent with my needs.

(T)he term *method* denotes a scientific procedure; it is the specification of the steps which must be taken in a given order to achieve a given end. *Methodology*, on the other hand, . . . is the philosophical study of the plurality of methods. . . . It always has to do with the activity of acquiring knowledge, not with a specific investigation in particular. It is, therefore, a *meta*method and stands in the same logical relation to method as a class to one of its members.

Watzlawick, et al. (1974) explain that methodology is a higher order of abstraction than method or methods. A methodology offers means for users to create strategies, options or methods through which they can describe and manage the complexities of their situations.

For example, Naumann's (1986) thesis presents <u>A Communication Methodology for Pastors Engaged in Proceptively Generating and Selecting Church–Leadership Options</u>.

The focus of this study is not on the creation of a single or a limited series of methods. . . . A means by which methods could be created and tailored to fit each new set of circumstances encountered by the pastor seems more advantageous as an approach to situations not yet discovered. This approach requires a methods generator or, more accurately, a methodology. (p. 17)

Danielson (1989; see also 1991) creates <u>A Communication Methodology for Subordinates–Supervisors to Coactively Generate Heuristic–Leadership Decisions in Commercial Banking</u>.

The need for a methodology, or options generator, seemed obvious given that the decision that best serves one's needs in any given situation may not be the decision that best serves one's needs in

another situation. (1989, p. 6)

Gabriel (1989) offers <u>Negotiation Pedagogy as Communication Methodology Focused on Conditionality and Recursivity in Third-Order Coupling</u>.

It would be inappropriate to assume, however, that *any single method* for educating negotiators–in–the–making would be sufficient and effective; instead, a *methodology* is needed whereby students can generate and design their own options, not excluding strategies and tactics, for specific situations. (p. 3)

Thus, a methodology differs from a method or aggregation of methods. A *communication* methodology is grounded in perspectives of human communication and provides a mechanism by which persons can design their own communication practices (methods, strategies, options) to meet the demands of situations for which the communication methodology is constructed.

<u>The Complexity of Teaching-Learning Calls for the Use of Communication Methodologies.</u> Teachers need communication methodologies since they make decisions about their communication with students in complex and often highly unpredictable situations (Cochran-Smith & Lytle, 1993). Good teaching judgment is not formulaic, but context–dependent and based on multiple sources of evidence (Wilson & Wineburg, 1993). For example, Knapp, Shields, and Turnbull (1992) conclude their study of academic challenge for children of poverty by asserting that

No checklists of behaviors, questioning styles, instructional strategies or ways of connecting instruction to students' backgrounds exists—or could exist—that would bring teachers closer to the goal of offering the

children of poverty an academically challenging learning experience in elementary school. (1992, p. 43)

Since teaching is too complex for formula or checklist approaches, a communication methodology can be an appropriate way for teachers to help students design learning goals.

Cognitive research on executive control processes (Britton & Glynn, 1987) suggests that teachers manage complex, unpredictable situations in creative methods-generating ways. "Executive control processes deal with how individuals plan and direct, select and orchestrate the various cognitive structures and processes available to them for attaining some goal" (Schumacher, 1987, p. 109). Prior knowledge often does not allow one to anticipate solutions to situations that are complex and irregular if the knowledge is represented in prepackaged, rigid, compartmentalized, artificially neatened and regular forms. Rather than using schema–type theories to apply old knowledge to new cases that involve complex and irregular problems, thinking about such problems in terms of flexible knowledge representations suggests that people free themselves from using information only in the ways they originally learned. Knowledge fragments are assembled to fit contextual needs; potential knowledge is mobilized for schema construction or assembly (Spiro, Vispoel, Schmitz, Samarapungavan, & Boerger, 1987).

Executive control processes research provides a theoretical cognitive explanation, a description, of teacher thinking in response to new situations. A communication methodology focused on ecological unitizing could provide a strategy for generating options for action in those situations.

Ecological Unitizing

Ecological unitizing initially derives from Gregory Bateson's formulations. Bateson (1987) attends to both the *elements* of a particular situation and the *relationships* among those elements pertinent to purposive understanding.

Consider a tree and a man and an axe. We observe that the axe flies through the air and makes certain sorts of gashes in a pre-existing cut in the side of the tree. . . . Our explanation (for certain purposes) will go round and round that circuit. In principle, if you want to explain or understand anything in human behavior, you are always dealing with total circuits, completed circuits. This is the elementary cybernetic thought. . . .

Suppose I am a blind man, and I use a stick. . . . The way to delineate the system is to draw the limiting line in such a way that you do not cut any of these pathways in ways which leave things inexplicable. If what you are trying to explain is a given piece of behavior, such as the locomotion of the blind man, then, for this purpose, you will need the street, the stick, the man; the street, the stick, and so on, round and round. . . . But when the blind man sits down to eat his lunch, his stick and its messages will no longer be relevant—if it is his eating that you want to understand. (p. 464-465)

Bateson (1987) approaches understanding and explaining human behavior from a holistic, rather than elementalistic, perspective grounded in cybernetics and systems theory. His explanations led me to the construct, *ecological unitizing*. The following sections provide background explanation for *unitizing* and *ecological*, and my use of the term *ecological unitizing* in

this dissertation.

Unitizing. While *unitizing the data* and *unit of analysis* are staples of both quantitative and qualitative graduate research, I focus here on unitizing in qualitative research. Krippendorff explains unitizing in content analysis:

> The first task of any empirical research is to decide what is to be observed, recorded, and thereafter considered a datum. . . . empirical research requires a multitude of information bearing units: 'data.' Unitizing involves defining these units, separating them along their boundaries, and identifying them for subsequent analysis. (1980, p. 57)

Teachers unitize in *deciding* what to observe, record, and consider as data when communicating with students in the complex and unpredictable situations of classroom life. They select and assemble knowledge fragments and potential knowledge to create flexible knowledge representations useful in meeting moment to moment goals (Schumacher, 1987; Spiro, et al., 1987). Units "permit precise description of relevant content characteristics" (Holsti, 1969, p. 94). According to Lincoln and Guba, a unit

> should be heuristic, that is, aimed at some understanding of some action that the inquirer needs to have or take. . . . Second, it must be the smallest piece of information about something that can stand by itself, that is, it must be interpretable in the absence of any additional information other than a broad understanding of the context in which the inquiry is carried out. (Lincoln & Guba, 1985, p. 344-345)

The content--the data--teachers unitize occurs as they participate with their students in ever-changing lived experience.

All people, including researchers and teachers, unitize in applying structure to experience. The structure applied depends on one's own ways of

knowing (Bois, 1978). According to Holsti, researchers' theoretical foundations guide their coding processes.

First, each alternative method of coding content materials carries with it certain assumptions about the data and the inferences which may be drawn from them. . . . Second, decisions about methods of coding should be guided by the investigator's theory and hypotheses. (Holsti, 1969, p. 94)

Brinberg and McGrath assert that research is generated based on what the researcher values. The researcher "finds or invents elements and relations" (1985, p. 31). For example, Sorensen, Plax, Kearney, and Burroughs (1989) struggled to code and categorize compliance-gaining messages provided by prospective and experienced teachers who responded to school scenarios offered by the researchers. Failed efforts to unitize by sentence led the researchers to unitize discrete attempts to change student behaviors, whether phrases, sentences, or paragraphs. Failed efforts to categorize the units according to a 22 item predesigned list led them to a simpler four part scheme: prosocial, antisocial, a 'mixed prosocial and antisocial' category, and 'teacher information-seeking.' The information-seeking category was not predesigned, but found or invented by these researchers.

While not discussed in their report, Sorensen, et al. (1989) unitize in writing scenarios as well as when coding teachers' explanations of how they would gain student cooperation if experiencing the standardized scenarios. That is, they decide what is to be observed, recorded, and defined (Krippendorff, 1980) by guiding teachers to respond to what researchers consider as typical, understandable, scenario units (Lincoln & Guba, 1985). However, there is a dramatic difference between research on teaching based

on generalized scenarios divorced from particular cases, and teaching-learning experienced in the classroom. Elementary teachers' information about individual students does not come in completed units, but is built over time and space, from multiple observations and contributions of many people, in fragmentary, seemingly unrelated ways which depend on each person's ways of knowing. When teachers view a selected situation holistically for a particular purpose by discovering and selecting pertinent information elements and the relationships among them, they engage in ecological unitizing.

Ecological. McArthur and Baron's (1983) ecological approach to social perception is helpful in explaining the *ecological* in *ecological unitizing*. Their ecological approach, focused on events rather than schemata, emphasizes adaptiveness. An ecological position is concerned with information relevant to a perceiver's goals and actions. The active perceiver discovers and strategically adjusts to accessible information revealed in dynamic, changing events, and even creates events. Events *afford* choices for specific perceivers. "Affordances are perceiver referenced highlights . . . perception requires certain compatibilities between the perceiver and the perceived" (p. 218). Perceivers are attuned to what is most relevant to adaptive action; different perceivers unitize and interpret events differently. Bias is "simply a matter of selective attention and action, and whether a given bias leads to error in adaptive behavior is an empirical, not a logical problem" (p. 230).

Field and Jardine's ecological explanation of whole language instruction also reveals the role of an active perceiver who is afforded choices for action. Whole language approaches assume people learn to read the way

they learn to talk, through immersion in integrated reading and writing language arts activities. Such instruction "opens up the risk-laden task of paying attention to what is needed specifically with this task of writing, and that moment of reading" (1993, p. 11). An ecological approach recognizes the fundamental tension in interrelationships, and that interdependence (p. 7) among teacher, child, text, and topic cannot be disassembled without destroying those relationships.

The fundamental tensive interrelationships of teaching and learning are also described by Roe and Kleinsasser, (1993) educators of reading teachers. Their sociological perspective suggests three recursive, overlapping attributes essential for teachers: ecological thinking, cultural responsiveness, and communicative competence. Ecological thinking is particularly pertinent to my use of *ecological* for this dissertation. Ecological thinking is circular and inclusive, recognizing interactions. Teachers thinking ecologically consider the knowledge, abilities, and needs of specific students, and "realize that endless combinations can occur within a classroom" (p. 86). These teachers act as insightful guides--as understanding, experienced, event-oriented navigators--who consider the complexities of relations between themselves, their students, and their total environment, synchronize multiple concerns, embrace cultural patterns, continually assess the ramifications of their judgments, contemplate, and maintain positive attitudes while facing continual challenges for change and the unending demands on their time and patience.

In each of these three uses of *ecological*, active perceivers discover and adjust to accessible information selected to enable action in specific situations. This dissertation focuses on the communicative relationships of active

perceivers, both teachers and students, and the understandings they develop which enable students to generate learning goals. I am not emphasizing an ecological approach focused on all the interacting and related family, caregiver, school, society, and planet environments which some educators of teachers (for example, Flake, 1993) and specialists in assessment (for example, Lowenthal, Landerholm, & Augustyn, 1994) emphasize. While children's nested environments impact their school achievement, those environmental impacts are brought into this project through the perspectives of the teacher and the student. The emphasis in this dissertation is on teachers and students as active communicators, using a communication methodology to discover, adapt, and integrate many pertinent fragments of accessible information into ecological units to enable students to generate their own learning goals.

Ecological and Unitizing. I completed an earlier research project concerning *ecological unitizing* as preparation for this dissertation (Menousek, 1994). My purpose in that project did not concern student generated learning goals; it pursued three elementary teachers' perspectives on their successful communicative relationships with students. These effective teachers discover and adjust to accessible information affording them chances to act adaptively and lead students to learning success. I include one ecological unit of that interview data here to exemplify ecological unitizing. The teacher's explanation of guiding a child to spelling test success is recorded in Appendix A. In that segment, the teacher shares her 1) perspectives on the relationship and her 2) communicative strategies; describes her 3) observations and 4) inferences; takes the 5) student's perspective; states her knowledge 6) of the student, 7) of the student's

autonomy, and 8) of the student's communicative behaviors; and creates 9) flexible descriptions for this unique child. These nine categories are integrated with the teacher's remarks in Appendix B to show the linked nature of (relationships among) the elements as explained by the teacher.

This teacher uses related elements in happy combination to help a child toward success. The teacher is obviously not dealing with the student in isolation, nor did they start the year with this successful relationship in place. The elements and relationships used to facilitate this student's success in her spelling tests were not structured into one template for all the teacher's students; the teacher seems to have a strategy for generating strategies with different children in widely varying situations. Her approach is ecological in discovering and adjusting to accessible information about the student which affords her choices for adaptive action (McArthur and Baron, 1983). It is also ecological in synchronizing information about the knowledge, abilities, and needs of a specific student with her multiple concerns about the classroom as a whole (Roe & Kleinsasser, 1993). The teacher unitizes ecologically in selecting pertinent elements (in this case I have selected nine categories) which she can describe only in the relationship among them. The smallest piece of information that can stand by itself (Lincoln & Guba, 1985) is the long paragraph which provides an understandable ecological unit of information about the successful communicative relationship.

The paragraph featured in Appendices A and B is not an example of ecological unitizing resulting in a child generating a learning goal. It is an example of ecological unitizing to help a child succeed in spelling tests. The data are included here to exemplify the construct ecological unitizing, not learning goal formulation.

I believe good teachers have strategies for ecological unitizing through which they manage the complexity of their communicative relationships with students. They build holistic units of the elements and relationships of their experience with a child, affording choices which lead to adaptive action enabling wide varieties of student success. I believe students also can learn to engage in ecological unitizing in order to independently and successfully pursue their own learning goals.

Summary. Up to this point, I have explained two of the crucial terms in my purpose statement: *communication methodology* and *ecological unitizing*. I will now explain the remaining terms: *designed to enable, upper elementary school students, generate,* and *appropriate learning goals.* The complete purpose statement reads: The purpose of this dissertation was to create and test a communication methodology, focused on ecological unitizing, designed to enable upper elementary school students to generate their own appropriate learning goals.

Designed to Enable

The communication methodology was *designed to enable* elementary school students to generate their own appropriate learning goals. I have focused so far on teachers' roles because teachers must know how to coach their students to success. Court, (1991) in discussing how to teach critical thinking, asserts that good thinking, asking, and investigating in the classroom are closely related to relationships in which teachers respect, listen to and treat students as intelligent persons. Lesgold writes about coaching students in problem solving:

> A teacher can be extremely helpful in guiding one's practice if he or she understands how to increase the odds that one will do

approximately the right thing while noticing the circumstances under which one did it. (1988, p. 209)

Bransford and Vye (1989, p. 196-199) discuss characteristics of coached practice, as distinguished from solitary practice, in problem solving. They include:

1. Coaches need to monitor and regulate students' attempts at problem solving so they don't go too far into the wrong solution yet have the opportunity to experience the complex processes and emotions of real problem solving. . . .

2. Coaches help students reflect on the processes used while solving problems and contrast their approaches with those used by others. . . .

3. Effective coaches use problem-solving exercises for assessment . . . (of students') misconceptions. . . .

4. Coaches . . . create 'teachable moments.' . . . give students the opportunity to contrast their initial ideas and strategies with other possibilities. . . .

Bransford and Vye's (1989) characteristics of coached practice in problem solving seem useful as well in enabling students to generate their own appropriate learning goals.

Upper Elementary School Students

I focused this dissertation on upper elementary school students, fourth through sixth graders, because of my many years of experience with, and interest in, enabling children of these ages and grade levels to succeed with assigned learning goals and self-generated learning goals.

Generate

This dissertation was designed to enable upper elementary students to

generate their own learning goals. Getzels's (1979) work on problem finding explains the value of generative, creative, productive behavior for humans' well-being. Three classes of problems discussed by Getzels include presented problem situations, in which problems exist and are given to solvers (as when teachers assign questions or goals), discovered problem situations, in which problems exist and are visualized by solvers, and created problem situations, when problems exist only after someone invents or creates them. Humans find and create problems even *at risk* to their well-being and life because *doing so* gives them pleasure and well-being.

Student-generated questions research shows that students derive a sense of pleasure and well-being from creating questions. All students *can* be taught to generate effective questions, but they *must* be taught how to do so (Cohen, 1983; Gillespie, 1990; McFeely, 1984; Wilhite, 1988). When students are free to generate their own questions about their curricula, they may actively participate and develop awareness of their learning and comprehension levels (Gall & Rhody, 1987). Students improve their reading comprehension, whether generating pre- or post-reading questions (Gillespie, 1990). Children who generate their own questions become excited about learning, actively engaged in directing their learning, and prepared for future challenges (Wing, 1992). I wanted to guide children to generate learning goals arising from their own interests and excitement.

My purpose states *generate* learning goals. While the emphasis of this communication methodology was on *generating* learning goals, children may be unlikely to commit themselves to creating interesting and valuable learning goals at school if the classroom environment interferes with achieving those goals. I recognize that achieving goals must be an integral

part of classroom activities. Yet, this dissertation is focused on a communication methodology for generating those goals. Goal achievement was included in this dissertation only in an anecdotal way.

Appropriate Learning Goals

Some researchers state without elaboration that students do set goals (Biemiller & Meichenbaum, 1992; Bland, Meland, & Miller, 1986), or are taught or required to set goals as part of intervention procedures (Christiano, 1993; Conderman & Campton, 1992; Downing, 1977; Greene & Ollendick, 1993). When researchers describe student goal setting, they seem to focus on two kinds of appropriate achievement goals: 1) learning, task, or mastery goals, and 2) performance, or ego-social goals. According to Meece and Holt, two professors of education and psychology,

> *Task-mastery goals* represent a desire to learn something new, to master a task, or to improve one's competence. Learning or mastery is valued as an end itself. *Ego-social goals* represent a desire to demonstrate high ability or to please the teacher. Achievement goals of this type reflect a valuing of high ability. . . . (Meece & Holt, 1993, p. 582; see also Meece, Blumenfeld & Hoyle, 1988)

Students with *performance goals* may assume an ability-outcome link and focus on their own ability or self worth (Ames, 1992). Performance goals might feature good grades, success passing a timed test, or competition (Corno, 1992; Garcia & Pintrich, 1993). Researchers studying performance goals may ask children to select a number of pages, problems, or vocabulary words to learn (Montgomery & McKay, 1991; Sagotsky, Patterson, & Lepper, 1978; Schunk, 1985). Other examples of performance goal setting include students predicting the number of problems they will complete (Tollefson,

Tracy, Johnsen, Farmer, & Buenning, 1984), students self-monitoring by comparing performance goals against performance levels (Miller & Kelley, 1994), students selecting goals from a teacher-provided list (Sowers, Powers, & Irvin, 1991), and students selecting objectives in a skill mastery program (Hannefin, 1981). These types of goals can be useful and appropriate ways of guiding learning for both teachers and students, but they were not featured in this dissertation.

The focus of this dissertation was on *learning goals*. Children with learning, task, or mastery goals involve themselves in tasks that are interesting, challenging or that provoke their curiosity. They may want to learn something new, master a task, or improve their competence rather than their performance (Meece & Holt, 1993). They may believe that effort leads to success, and work to develop new skills, to understand their work, and to achieve mastery based on self referenced standards (Corno, 1992; Garcia & Pintrich, 1993). According to Meece and Holt (1993), research suggests that learning goals may be associated with use of effortful or effective learning strategies and ego or performance goals with the use of less effective or more superficial learning strategies. For example, a child with a mastery learning goal might choose to produce independently written sentences showing understanding of the word meanings. A child with a performance goal might be satisfied with completing a vocabulary worksheet as assigned.

Meece and Holt (1993) report research in which several goal orientation and academic performance measures were administered by five teachers to students selected from ten of their fifth and sixth grade science classes. The teachers also completed a rating scale about the students. A cluster analysis yielded three groups of students based on task goal orientation, ego-social goal

orientation, and work-avoidant orientation. One cluster of students demonstrated high task-mastery orientation. The combined mastery-ego group showed both high task-mastery and high ego-social orientations (both appropriate for setting achievement goals), while the low mastery-ego group showed a high work-avoidance orientation. Measures of academic performance were significantly higher for the high mastery cluster, and cluster membership was not independent of teacher. One of the five teachers was associated with 30% of the students in the high-mastery group, and two of the teachers were associated with 63% of the low mastery-ego cluster students. Meece and Holt (1993, p. 589) suggest that their study supports others which "emphasize the importance of fostering a mastery orientation toward learning in the classroom."

A communication methodology focused on ecological unitizing designed to enable upper elementary students to generate their own appropriate learning goals could help foster such a mastery orientation and make a contribution to both student satisfaction (Wing, 1992) and student academic achievement (Meece & Holt, 1993). Students who create their own appropriate learning goals take initial steps toward mastery of tasks and knowledge.

Critical Survey of Pertinent Literature

I found several bodies of research and literature pertinent to my statement of purpose. I will discuss the pertinent unitizing and learning goals literature in this critical survey and the communication methodology literature later as it relates to the research design.

Upper Elementary School Students' Unitizing

Upper elementary children were an appropriate focus for this

dissertation since research shows that they can engage in complex and abstract unitizing processes to accomplish coursework. While the communication methodology was designed for elementary teachers to use, unless the students can engage in the necessary abstract unitizing, they would not be able to generate their own goals. An ERIC search of *unitization, unitize, unitized,* and *unitizing,* 1982-1995, revealed several studies related to upper elementary students' unitization practices during both reading and math learning. As children grow and advance through reading levels, letters (*t*), become embedded in patterns (*the,* bro*ther*) (Cunningham, Healy, Kanengiser, Chizzick, & Willitts, 1988; Healy & Drewnowski, 1983). Word recognition skill is in the final phase of unitization when children integrate word spelling, pronunciation, and meanings (Ehri & Wilce, 1983; see also LaBerge, 1980).

Wheatley (1992, p. 44) observes "that the unitizing operation is a general mental operation that is fundamental to many mathematical concepts." For example, in tiling, a geometry activity using units of area measurement to create abstract geometric shapes, two L shapes may be placed together to form a rectangle. When tiling, upper elementary students create abstract units by rotating constructed images, determine feasibility of placement of units, conceptualize and imagine regular patterns, and produce drawings (Wheatley, 1992).

Lamon suggests that in complex mathematical domains it is impossible to "designate a single linearly ordered path through the many content domains that are essential to . . . understanding." Prior knowledge is extensive and interactive, and identifying mathematical processes that facilitate growth in mathematical thinking is crucial to success (1990, p. 3). By

using one mathematical process, unitizing, upper elementary students are able to compose, decompose, and build units of units in some math activities prior to receiving unitizing instruction in those activities. For example, beginning sixth grade children can solve ratio and proportion problems such as this: *When an apartment builder builds three one-bedroom apartments, he or she must build four two-bedroom apartments and one three-bedroom apartment. If 35-45 apartments are planned for a complex, how many of each size will the builder build?* In solving problems like this, children may choose a ratio as a unit, build (compose) units of units, choose most efficient units from alternatives, and decompose units to solve the problems (Lamon, 1993).

The preceding two paragraphs sample research on upper elementary school students' unitizing in math. In language development, children learn to reframe a situation in terms of a more collective unit. Children can relate composite units such as 5 *bags of candy* with 6 *candies per bag* to create a new unit of 30 *candies*. Parallels between math and language suggest to Lamon (1990, p. 36) that "the unitizing and norming process may be viewed as a spiralling cognitive activity in which increasingly complex unit formations are taken through the operations of modeling and counting, composing, abstracting, and relating." Upper elementary children can and do engage in complex unitizing processes as they learn, thus they are likely able to unitize to generate their own learning goals.

Learning Goals

I searched ERIC, 1982-1995 and PsycLIT, 1974-1995, for literature and research related to elementary school students' goal setting which, in turn, led me to other articles about goal setting. I searched for pertinent problem

finding literature and research in ERIC, 1992-1995, Sociofile, 1974-1995, and PsycLIT, 1990-1995. While widely referencing goals, little information is presented in literature on *how* students create goals or find problems, or *how* teachers teach students to create goals or find problems.

My focus was on a child's ability to define or identify a problem prior to working toward its solution. This ability seems to depend on the child taking ownership of a personally meaningful topic and engaging in concrete hands-on experience coupled with abstract creative thinking (Kay, 1994). Problem finding literature provides a useful explanation of problem finding as a recursive, interactive, socially sensitive creative process dependent on intrinsic motivation which may result in problem identification or problem definition (Getzels & Smilansky; Runco; cited in Runco & Nemiro, 1994).

Value of Student Goal Setting. Goal setting proves beneficial for students. Thomas (1989; see also Ames, 1992) summarizes research-based perspectives on children's thinking about their own achievement. Mastery-oriented children begin tasks immediately, use questions, express satisfaction, request additional tasks, engage in self-talk including self-praise, self-encouragement, and self-guidance, continue to work, try alternatives, and usually want to stay on task until they reach solution or resolution. Mastery goals indicate an orientation to long-term high quality involvement in learning (Ames, 1992). According to Martino, a high school teacher of at risk students, " implementation of goal-setting strategies appears to be the determining factor in producing consistently higher student achievement," and helps students develop an internal sense of control and responsibility (1993, p. 22). A carefully structured system of goal-setting helps prevent dropouts (Conrath, cited in Martino, 1993).

So, the *value* of teaching children to generate their own learning goals is not in question. What has been done in this area? As recently as 1992, Ames states, "Establishing linkages between the environment, goals, and student motivational outcomes has been very important; determining how to create these goals in the classroom is a next step, albeit not an easy one" (p. 261). Ames's purpose is to define classroom structures which teachers can design or manipulate to influence the salience and adoption of a particular goal. She suggests that classroom structures fostering task orientation include a variety and diversity of tasks that children perceive as meaningful and which focus on understanding, structuring to minimize social comparison, product and grade orientation, and an atmosphere that allows students to make choices.

Pertinent Research Reports. Two articles on student generated learning goals in the elementary classroom and two concerning student problem finding were valuable in showing the status of research on student generated learning goals. In a year-long project, Carroll and Christenson, (1995) a curriculum developer and a fifth grade teacher, found that Christenson's students could set and accomplish their own reading goals. Their article focuses on four major challenges they faced in teaching and learning about setting learning goals for reading and writing in fifth grade: "(1) helping students set appropriate goals, (2) creating an environment that supported the goal-setting process, (3) linking instruction to individual goals, and (4) helping students learn to evaluate their progress" (p. 43).

The first of Carroll and Christenson's (1995) four challenges, helping students set appropriate goals, was my focus. Carroll and Christenson report that Christenson introduced goal setting, discussed and defined goals, and

asked students to set reading and writing goals for themselves. "The students' lists revealed that many had difficulty setting appropriate goals" (p. 44). Many students focused on performance goals; few focused on content, organization, understanding or personal meaning. Christenson decided to practice her own reading and writing goal setting so she could model for the students. She found setting goals for herself difficult. The class read biographies and wrote personal narratives on its way to learning to set personal goals. Christenson taught lessons on valuable aspects of reading and writing, such as writing to reflect one's thinking and learning while reading, and organizing information. She provided time for reflection. The children began to set learning goals. As Ames (1992) suggests, Christenson then created an environment structured to support goal setting, including allowing time for thinking about and working on goals, allowing choices about what and how to read and write, encouraging responsibility with accountability for how children spent their time, giving opportunities to share accomplishments and providing time for other students to respond to and support their peers.

While the *how* of setting learning goals is not explicit in Carroll and Christenson (1995), the value of time, opportunity, encouragement, modeling, and certain classroom structures is clear. The importance of these elements has influenced the development of my communication methodology.

Siu-Runyan (1994) also taught goal setting for reading and writing in upper elementary classrooms. She learned to have conversations with her students to assess their understanding, thinking and learning, and asked what she did that was helpful and not helpful to her students. Siu-Runyan began

to ask, "'What would you like to learn next in order to become a better reader or writer'" (p. 149)? She explained, "I received very little response from the students. . . . After about a month of my asking this question over and over again, students slowly began telling me what they wanted to learn next" (p. 149-150). She began presenting mini-lessons on desired information, and students began to take more responsibility for their own learning. Commitment, persistence and respectful relationships were important within her process of trial and error.

Kay describes a "Discovery Center Unit designed to initiate the development of problem-finding skills with students in grades three through six" (1994, p. 195). Her initial question, "If you could learn more about anything in the world, what would you choose?" precedes assurances that the child is to seek his or her own problem from which to create a learning display for other children. Support steps involve collecting interesting facts through library research, discovering different perspectives on the information of interest, teaching workshops on topics like outlining and organizing, and creating and presenting displays.

Tiegano, Sawyers, and Moran (1989) suggest that very young children find problems when working with play dough by exploring (asking, "What can it do?") and by playing (asking, "What can I do with it?"). The teacher helps children problem find in nondirective/facilitative or in directive/facilitative ways such as adding a rolling pin, which may change the structure of the activity. Incorporating a child's interests, encouraging involvement in decision making, and allowing time for the child to think and develop ideas guide their problem finding process.

Each of these teachers seems to employ a very-general-opening-

question approach with children. A general-approach-and-add-information may not be the most appropriate way to teach elementary children to generate their own learning goals. Students, and often adults, are novices at generative learning. For novices, introduced concepts and theories often seem like facts to be memorized. Novices are "unable to experience the effects of the new information on their own noticing and understanding." Novices need help moving from general goals to generation and definition of distinct subgoals even when provided with a general goal (Cognition & Technology Group at Vanderbilt, 1992, p. 68).

The most widely used system of questioning in schools may contribute to students' being novices at generative learning. This pattern of questioning in schools, the teacher prompt or question, student response or answer, and teacher evaluation (Cazden, 1988; Lemke, 1990), can be useful in many ways. It can also interfere with discussion and learning if teachers use questioning in ways that limit students' desire to learn or to take ownership of meaningful topics (Dillon, 1982, 1984). Teachers who control questioning maintain power over communicative exchanges, and over topic setting and development. This may inhibit student pursuit of interesting questions (Dillon, 1982; Lemke, 1990). Yet, children can be taught to learn to question, not only to ask questions or give responses (Carter & Richey, 1961/1962; Wing, 1992).

A sincere, though general, question like, "What do you want to learn?" seems incongruent with the kinds of questioning students frequently experience. Thus, children may find responding difficult. Rather than such a general question, specific questions grounded in children's current interests may help them toward their learning goals. Such questions could lead

student-teacher discussions toward situationally based learning goals.

A communication methodology for teaching children strategies for generating appropriate learning goals, one designed to respond to each child's individual interests and needs, could be a valuable contribution to teaching children *how* to set learning goals. The communication methodology developed in this dissertation centers on *each individual child* and his or her complex of experiences and interests. It is grounded in the perspectives of teacher-student communication explained in the following section.

Communicative Relationships

In this section, I link three perspectives of human communication into a perspective of teacher-student communicative relationships. I propose that ecological unitizing by teachers and students which enables students to generate their own learning goals depends on conscious or unconscious involvement in the kinds of relationships I describe here.

I believe the communicative relationships between teacher and students, and the communicative relationships a teacher fosters among students are key in helping students pursue success and independence, though effectiveness is sometimes limited by the restrictions teachers experience and by the larger sets of environments in which children's school experiences are nested (Bronfenbrenner, 1979). Viewing the structure of these communicative relationships as *both* socially constructed *and* dependent on teachers' and students' physical biological structures (Maturana & Varela, 1987) helps me recognize three key aspects of these relationships: the cognitive autonomy of teacher and students, their reflexive communication, and their moral responsibility in intervening in, and creating, their lived social realities (Krippendorff, 1993).

In recognizing *cognitive autonomy*, I recognize

that (a) individuals cannot be forced or caused to understand

something as intended, as it exists, or as it should be; (b) that nobody

can directly observe someone else's understanding; (c) that all

individual actions are dedicated to preserve individual understanding,

and (d) that understanding is never final, even in the absence of

external stimulation. (Krippendorff, 1993, p. 41)

Reflexivity means that one's reality is not fixed but changes as it is

talked out and is based on self-reference, discussion and practice. By

recognizing *moral responsibility*, I am aware of the ethics of my participation

in creating, distributing, and intervening in the realities practiced in my

classroom. This awareness leads me to respect my students (Krippendorff,

1993, p. 41-42).

Dialogic Perspective

Martin Buber (Friedman, 1976) weaves his dialogic perspective of

teaching with themes congruent to Krippendorff's individual autonomy,

reflexivity, and moral responsibility. Buber, a philosopher, educator,

theologian, and worker for peace, claims that genuine conversation and

genuine relationship exist only as one accepts the otherness of the other, or

makes the other present. A teacher may desire to influence a student and to

lead the student to share the teacher's relationship with what the teacher calls

truth. By winning a student's confidence, the teacher can "discover and

nourish in the soul of the other" what the teacher has recognized as truth or

right (1976, p. 180). Buber claims the teacher will succeed only as he or she

confirms and accepts the student as a unique individual who will have a

relationship with that truth in accord with the student's own individuality.

A teacher builds mutuality with a student and includes the student by experiencing their meeting from the pupil's side. That is, the teacher "sees the position of the other in his (sic) concrete actuality yet does not lose sight of his own" position (p. 177). From Buber's perspective,

> Inclusiveness must return again and again in the teaching situation, for it not only regulates but constitutes it. Through discovering the 'otherness' of the pupil the teacher discovers his (sic) own real limits, but also through this discovery he recognizes the forces of the world which the child needs to grow and he draws those forces into himself. Thus, through his concern with the child, the teacher educates himself. (Friedman, 1976, p. 177)

This inclusiveness could be described as an unequal partnership in dialogue since, according to Buber, the student cannot equally well see the teacher's side. Through concern for the child, the teacher educates himself or herself to learn how the child needs to learn.

Rhetorical Perspective

Foss and Griffin (1995) also develop themes of individuality, reflexivity and moral responsibility in their "Invitational Rhetoric," which proves valuable when considering communicative relationships between teacher and students. "Invitational rhetoric is an invitation to understanding as a means to create a relationship rooted in equality, immanent value, and self-determination" (p. 5). Invitational rhetoric is appropriate "when changing and controlling others is not the rhetor's goal." Understanding and insight should occur within a "nonhierarchical, nonjudgmental, nonadversarial framework. . . . " in which diverse positions can "be compared in a process of discovery and questioning" (p. 5-6).

Foss and Griffin's rhetor offers the audience the safety that arises from respect and caring, recognizes the value of audience members' uniqueness, worthwhileness and distinctiveness, and respectfully provides freedom for others to speak out for their own created, developed and chosen options. This rhetorical approach supports Krippendorff's (1993) three themes of successful communicative relationships, seems appropriate for Buber's dialogic educator (Friedman, 1976), and is not incompatible with unequal partnership in dialogue, though Foss and Griffin (1995) insist on a relationship rooted in equality. The teacher fostering Buber's dialogic relationship in his or her classroom could easily act as Foss and Griffin's rhetor, encouraging teacher and students to take both rhetor and audience roles.

Biological Perspective

Maturana and Varela (1970, 1987) describe links among cognitive autonomy, reflexivity and moral responsibility from a biological perspective. They are physiologists and educators of medical students who created their perspectives of human communication while trying to answer disconcerting questions students raised about what it means to be a living being. These two biologists ground human understanding, social life, and language in human biology.

Maturana and Varela claim that living beings are physically organized so that they create, produce, and maintain themselves, changing structurally (as from infant to adult) while maintaining their own (i.e., avian or human) organization. Mutual interactions between living beings lead to their structural congruence or structural coupling, whether between cells, organs, animals, or human beings. The rich and vast nervous system of *human*

beings allows for the structural coupling (the adaptations of social life) called language and self-consciousness (1987, p. 176). Environmental structures, including relationships, only trigger the changes in each individual; environmental structures do not specify or direct changes. The systems of relationships between people yield changes in each that are determined by the structure of the receiving being which conserves its own organization and adapts to the structural coupling. For Maturana and Varela, learning is "an expression of structural coupling" and should not be described "as an internalization of the environment" (1987, p. 172).

Perhaps an analogy will clarify this. Imagine a person who has always lived in a submarine. He has never left it and has been trained how to handle it. Now, we are standing on the shore and see the submarine gracefully surfacing. We then get on the radio and tell the navigator inside: "Congratulations! You avoided the reefs and surfaced beautifully. You really know how to handle a submarine." The navigator in the submarine, however, is perplexed: "What's this about reefs and surfacing? All I did was push some levers and turn knobs and make certain relationships between indicators as I operated the levers and knobs. It was all done in a prescribed sequence which I'm used to. I didn't do any special maneuvers, and on top of that, you talk to me about a submarine. You must be kidding!"

All that exists for the man inside the submarine are indicator readings, their transitions, and ways of obtaining specific relations between them. It is only for us on the outside, who see how relations change between the submarine and its environment, that the submarine's behavior exists and that it appears more or less adequate according to

the consequences involved. (Maturana & Varela, 1987, p. 136-137)

<u>Summary</u>

Maturana and Varela (1987) present from a biological perspective what Foss and Griffin (1995) say from a rhetorical perspective and Buber (Friedman, 1976) suggests from a dialogic perspective: changes within our students are triggered by what they select from their social environment in the classroom. Changes happen as individuals are involved in the coupled relationship of social life, coordinated in language.

> Language was never invented by anyone only to take in an outside world. . . . Rather, it is by languaging that the act of knowing, in the behavioral coordination which is language, brings forth a world. We work out our lives in a mutual linguistic coupling, not because language permits us to reveal ourselves but because we are constituted in language in a continuous becoming that we bring forth with others. (Maturana & Varela, 1987, p. 234-235)

What biology shows us is that the uniqueness of being human lies exclusively in a social structural coupling that occurs through languaging, generating (a) the regularities proper to the human social dynamics, for example, individual identity and self-conciousness, and (b) the recursive social human dynamics that entails a reflection enabling us to see that as human beings we have only the world which we create with others--whether we like them or not.

Biology also shows us that we can expand our cognitive domain. This arises through a novel experience brought forth through reasoning, through the encounter with a stranger, or, more directly, through the expression of a biological interpersonal congruence that

lets us *see* the other person and open up for him room for existence beside us. This act is called *love*, or, if we prefer a milder expression, the acceptance of the other person beside us in our daily living. This is the biological foundation of social phenomena: without love, without acceptance of others living beside us, there is no social process and therefore, no humanness. (p. 246)

The communicative relationships between teachers and students are central to learning. I believe I can enable my diverse elementary school students to be successful, independent learners, developing achievement-appropriate and age-appropriate maturity in pursuit of their academic needs by fostering dialogic relationships with and among them in which cognitive autonomy, the reflexivity of our constructed realities, and ethical, respectful treatment of each member are featured. Buber's dialogic perspective (Friedman, 1976) of winning a student's confidence, seeing the student's perspective, and *making the other present*, combined with Foss and Griffin's (1995) rhetorical and Maturana and Varela's (1970, 1987) biological perspectives provide a foundation linked by Krippendorff's (1993) three themes. I used this perspective of human communication to create a communication methodology in order to promote successful, independent learning by elementary students who can generate their own goals.

Chapter II: Research Design

This design chapter 1) describes my work setting, 2) describes my typical student population, 3) explains the communication methodology as designed, 4) states the procedures followed to test the communication methodology primarily in the classroom, but also in the broader school setting and with other intermediate age children, 5) discusses the approach to analysis, and 6) includes discussions of trustworthiness issues.

Setting

I teach fifth grade in a large, urban midwestern public school district. The district is well-respected nationally. It offers administrative stability and good quality education in well-maintained facilities using continually updated, district-selected curricula. Local businesses seek ways to support high quality education in the district. School, community, and business leaders united to support a major school bond issue a few years ago, resulting in new and renovated buildings. Property taxes are a major source of school funding, and budget concerns surface in the community yearly. Special education costs continue to grow.

Court ordered desegregation busing began in the district in 1975; the court order was lifted in 1984. The district continues desegregation practices using magnet schools with specialized programs such as math and computers coupled with limited student choice of high schools, extensive desegregation busing, and a focus on multicultural nonsexist education. Some elementary schools have been closed and consolidated, and larger new elementary schools planned and built.

My elementary school is a consolidated, midtown school in an upper middle class residential neighborhood near downtown, surrounded by

middle and working class neighborhoods. A mobile population of 900 children from five former midtown and one north attendance area fill every nook and closet of our ten year old school and overflow the small playground. Children from nearby neighborhoods to the south, and close to downtown on our east, northeast and north are bused to the school. Three schools in those smaller attendance areas were converted to apartments or condominiums, one to a school for special-needs children, and one was demolished to make way for the newer, larger school. Children are bused a half hour or more from a north school to maintain racial desegregation. Primary (kindergarten to third grade) children remain at their north school while fourth through sixth graders come to ours.

Children

The following description of a class of 23 is typical of my student population. Four of the children live in the residential neighborhood surrounding the school. The others arrive on buses or vans. Minority groups represented in this class include an African, several African Americans, an Asian American, a Chinese, Native Americans, and white children. Hispanic students also attend the school. The children are culturally diverse, born and raised on three continents in two-parent, one-parent, blended, and extended families, and some live in foster homes. Their parents may be in post-doctoral programs or working on their GEDs, financially well-off, or sending their children to the school's federally funded free breakfast and lunch program, for which almost all my students qualify. Some parents are delighted to exchange home phone numbers with me for evening consultations about their child's progress. Other parents actively avoid school contact, perhaps not even updating emergency contact

information.

Some children have very strict, well developed, traditional standards of right and wrong, others appropriate school property. Some children cope with pain due to a loved one's suicide or death, or rejection by a family member; others experience a lifelong stable family. A few children have lived in one house all their lives, others are transported from shelters or move several times a year. Some of my students read several years above grade level, others read at first or second grade levels. Some children study challenging math at home, while others do not yet know their twos times tables or how to subtract. Some students are kind and gentle to any and all others. Some gossip, ridicule, and insult their peers. Some children seem confident of being loved. Others seem to feel bad, even worthless, and act in ways that disrupt their own and classmates' learning.

This setting and student population reveal the typical cultural, social, economic, educational, political, and emotional diversity of my classes. Into this diversity I brought my communication methodology for enabling my students to create their own learning goals.

Designing the Communication Methodology
Generators in Communication Methodologies

Each existing communication methodology provides a generator through which the communication methodology works. Apke (1982) creates a rules generator based on Shimanoff's Rules perspective. A physician and spouse can generate rules for communicating in situations when demands placed on the physician's time disrupt planned events. (Is there a doctor in the house?)

Ferdig's (1985) communication methodology concerns negotiation and

is applied to negotiating a wheat contract between the United States and China. She bases her methodology on rhetorical argumentation theory grounded in Darnell and Brockriede's shared choice model, G. I. Nierenberg's creative negotiation process, and Oneill's intelligence information processing using heuristic problem-solving guidelines (cited in Ferdig, 1986, p. 3). Using Ferdig's way to generate communication strategies, which she calls "the Rhetorical Schematic," participants can formulate credibility trends and diagnose rhetorical obstacles related to each negotiation topic, then follow up by generating communication strategies to respond to trends and obstacles (p. 209). They also evaluate strategic choices and determine mid-course strategic corrections for unforeseen contingencies.

Naumann's (1986) communication methodology allows pastors to generate both perspectives and alternaquences (MacNeal's, 1987, alternatives considered together with possible consequences of the alternatives) when church-leadership options are needed. Four theoretical perspectives-- Korzybski's and Bois's General Semantics, Burke's Dramatistic, Pearce and Cronen's Coordinated Management of Meaning, and Harper's Rhetorical Perspective--ground a pastor's path through generating and selecting leadership methods (cited in Naumann, 1986).

Gabriel's "negotiation pedagogy as communication methodology" employs her Change-Choice-Control Triangle (1989, p. 27) for generating questions to yield options for negotiation. Her metamethod is intended to provide students of negotiation with systematic means of directing themselves in generating and designing their own options for learning how to negotiate anything negotiable.

An options generator was necessary for my communication

methodology as well, one which recognized the cognitive autonomy of student and teacher, their reflexive communication, and their moral responsibility for their lived social realities (Friedman, 1976; Foss & Griffin, 1995; Krippendorff, 1993; Maturana & Varela, 1970, 1987). The options generator had to be useful in enabling upper elementary students to generate their own learning goals. The development of my initial options generator is explained in the next sections. Its revision follows in Chapter III.

Interrogational Functions

Development of my communication methodology languished for months until a student sauntered up to me, wearing shorts, and said, "Look, Ms. Menousek!" He took hold of his knee cap and pulled it left and right, displacing it at least an inch each way. "Is it broken?" I opened a science book and explained the attachment of the patella to the leg bones. Only later did I realize that personal interests, including playing football and understanding his body, fueled a question which could have lead to a learning goal. While a general question to the class, "What do you want to learn next?" (Carroll & Christenson, 1995; Kay, 1994; Siu-Runyan, 1994) may be an inadequate starting point for teaching children how to generate their own learning goals (Cognition & Technology Group at Vanderbilt, 1992), focusing on a specific interest by capturing the learning moment as it flies by may succeed.

A second student's comment enhanced my confidence in capturing the learning moment. The student proclaimed, "Look, I can walk like an orangutan!" After his demonstration, I asked, "How did you happen to get interested in how an orangutan walks?" The child answered, "I like to be funny, and I know how an orangutan walks, and I got out my science cards and had one of an orangutan." Whereupon he proceeded to explain the

picture and his thoughts on the relationship between length of arms and the stance the animal must use to walk.

These two students provided clues to structuring my communication methodology in the form of questions that include at least one variable (for example, "*How* did you figure out your funny walk?" rather than "*Is it* swinging your arms that makes your orangutan walk so funny?"). By including a variable, the questioner suggests multiple possible answers, not known to the questioner, which a respondent can figure out. Carter calls these questions *Interrogational Functions* (see Carter & Richey, 1961/1962; Gabriel, 1989) based on Keyser's (1947) propositional functions. These Interrogational Functions (IF) are far different than the "teacher question, student response, teacher evaluation" questioning pattern so overwhelmingly common in schools (Cazden, 1988; Lemke, 1990). Gabriel's (1989) use of Interrogational Functions in her negotiation pedagogy, and Polya's (1973) heuristic problem solving stages, in Appendix C, helped in creating my communication methodology.

<u>Pentad Factors</u>

Kenneth Burke's model for studying rhetorical acts, the dramatistic pentad, with its sense of changing configurations of relationships, also provided structure for my communication methodology, allowing the type of ecological unitizing (Bateson, 1987) seen in Buber's (Friedman, 1976) dialogic perspective on educating. Burke seeks to learn about meaning by studying language taking place in "the drama of human relations" (Nichols, 1963, p. 91). His approach is ontological, "centering on the *substantiality* of the *act*," on "the language act as a substance," as permanent and indestructible (p. 89).

An author, Burke states, (and for my purposes, a creative student)

associates acts, images, and personalities with his or her ideas of character and behavior. Those interrelationships are the author's motives, the author's situation. "*(S)ituation* is but another word for *motives*" (Burke, 1941, p. 20) in which "the *interrelationships* existing among all the factors" produce an experience (Nichols, 1963, p. 90). Nichols explains Burke's linguistic motivation as "the language act as a whole *construed as a situation*," representing a "co-ordination or interrelationship of act, agent, agency, purpose, and scene" (1963, p. 90). This is his "dramatistic pentad" or "dialectical substance" (p. 89).

The motives of an act can be discussed through Burke's pentad (Figure 1) in terms of 1) the name of the act, what the actor does or accomplishes in thought or deed, 2) the agent or agents who perform the act, including all aspects of their being, history, personality, behavior and other contributing factors, 3) an agency, the means or instrument by which the act is performed, 4) a scene, the situation, setting or background out of which the act grows, and 5) a purpose, the reason for the act, the rhetorical goal, effect or result (Burke, 1975; Littlejohn, 1992; Nichols, 1963). Interrelationships exist among all five pentad factors. For example, an agent's act might be modified, and partly motivated, by friends (co-agents) or enemies (counter-agents). His friends might be agencies by which he obtains information. An act by a voter might be the agency by which a politician gets elected (Burke, 1975).

Burke's focus on motives, on the language act as a situation, and on interrelationships of five factors is congruent with the ecological unitizing featured in this dissertation. To engage in ecological unitizing, an actor must attend to both the elements of a particular situation and the relationships among those elements pertinent to purposive understanding (Bateson, 1987).

ACT: What the actor does or accomplishes in thought or deed.

AGENT: Performs the act. All aspects of his or her being are included.

AGENCY: Means or instrument by which the act is performed.

SCENE: Situation, setting or background out of which the act grows.

PURPOSE: Reason for the act, rhetorical goal, effect or result.

Figure 1. Burke's Pentad Terms

Burke's pentad provides a way to view the elements of a situation through the factors of the pentad, and also to view the situation as a whole. He thus provides a structure which can be included in a communication methodology focused on individual students' interests and experiences.

Generating Learning Goals

The planned generator of my communication methodology (Figure 2) was called, in Buber's dialogic terminology, the "*Make the Other Present* Map and Interrogational Function Loop." It looped between *mapping* the structure of a child's interest onto the pentad and *questioning* via Interrogational Functions while attending to both the *elements* of the child's situation and the *relationships* among those elements pertinent to purposive understanding (Bateson, 1987). Guiding a child to attend to both the *elements* of a particular situation and the *relationships* among those elements was planned to encourage the child to engage in ecological unitizing as he or she worked toward an appropriate learning goal. In building the ecological unit around Burke's pentad, I relied on a structure Burke described as motivation: "the language act as a whole *construed as a situation*, representing a "co-ordination or interrelationship of act, agent, agency, purpose, and scene" (Nichols, 1963, p. 90). Looping through the pentad elements, Interrogational Functions, and the elements and relationships of the child's perspective could allow a teacher to recognize the child's cognitive autonomy, the child's creativity in talking out his or her reality, and their co-responsibility in intervening in their realities (Krippendorff, 1993).

The Loop (Figure 2) featured Bateson's (1987) structure of elements and their relationships. Since all knowledge is structural (Korzybski, 1958), mapping the structure of a student's learning goal and comparing the

$\downarrow$

Map to Pentad

invent elements
and relationships

invent elements
and relationships

Question:

Create and Ask IF

$\downarrow$
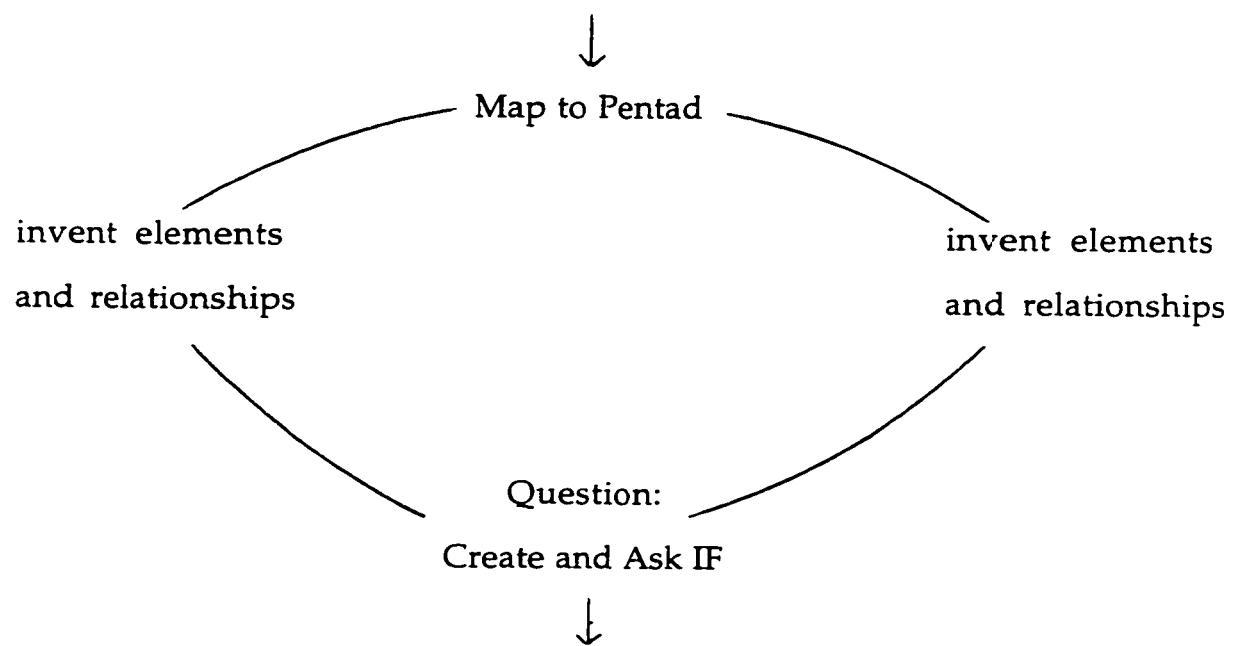
Figure 2. *Make the Other Present* Map and Interrogational Function (IF) Loop

structure against Bateson's ecological model would determine the completeness of the learning goal.

Students are often taught to search for the one answer their teacher expects and considers correct. A teacher creating Interrogational Functions with a child could use the communication methodology to help prevent premature closure by guiding the child to investigate and ponder his or her interests and knowledge. Using a complex of question options, semi-structured questions for the child to pursue according to his or her needs, child-created Interrogational Functions, and credibility checks could all help prevent premature closure.

In the communication methodology, any ecologically unitized learning goal would include some number of elements (variables) and a yet undetermined number of pathways. Examination of the recorded cases of students generating learning goals would allow discovery of differences, similarities, and variations among them. Then the sets of factors involved in ecologically unitizing learning goals could be described. The common structure of all learning goals is the Batesonian structure, or Batesonian unit, of elements and pathways uniquely revealed in the particular cases.

Figure 3 shows the initial structure of my communication methodology based on ecological unitizing. These steps and loops guide a user through the methodology. Figure 3: "Supplemental Notes" explains the elements of the design.

I have emphasized the role of students in inventing or creating their own learning goals (Getzels, 1979), and the pleasure and excitement they may derive in so doing (Wing, 1992). I have also emphasized that students are constructors of their own multiple realities (Lincoln & Guba, 1985). Since the

↓

Capture Child's Learning Moment (1)

↓

Map to Pentad (2, 5)

Agent

invent elements   *Act*   invent elements

and relationships   *Agency*   and relationships

Scene

Purpose

Select Pentad Element (3)

Question:

Create and Ask IF (4)

Who

What

When

Where

Why

How

↓

Completion of Child's Ecological Unit? (5)

(6) No   Yes

↘

Articulate Learning Goal (7)
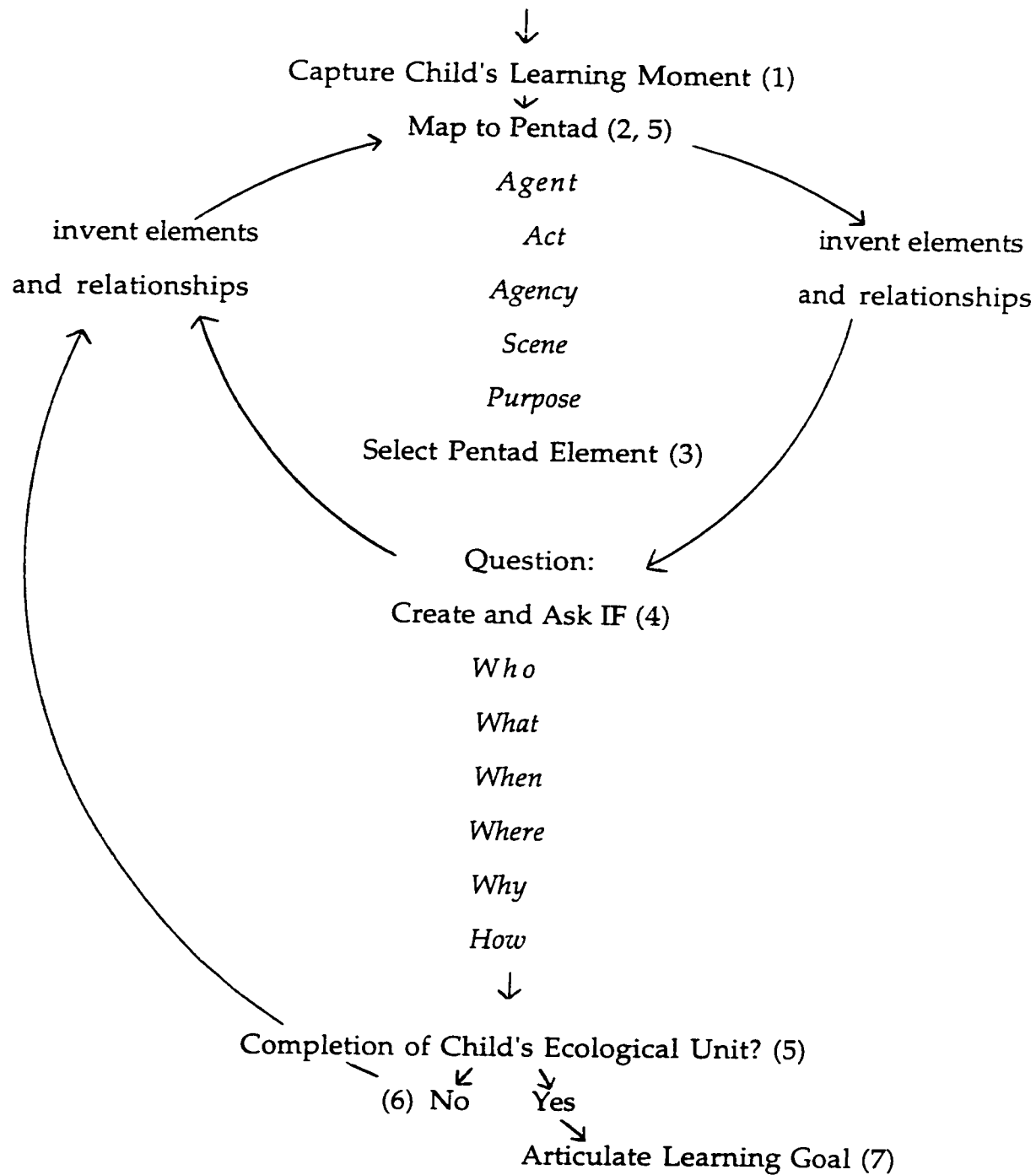
Figure 3. Structure to Implement the "*Make the Other Present* Map and Interrogational Function (IF) Loop" for Ecologically Unitizing Toward Learning Goals (See Supplemental Notes, p. 46, for meanings of numbers.)

1. Capture the learning moment by recognizing a child's stated interest

2. Map the child's learning moment in relation to the pentad

     Agent   Act   Agency   Scene   Purpose

3. Select factor from the structure for further inquiry

     Agent   Act   Agency   Scene   Purpose

4. Create and ask Interrogational Function to foster further articulation/clarification of the child's ecological unit

     Who   What   Where   When   Why   How

5. Map structure of child's answer into ecological unit of the pentad

6. Repeat steps 2 through 6 to approach completion of ecological unit

7. Child generates learning goal based on the child's ecological unit

Figure 3. Supplemental Notes

     Explaining the Structure to Implement the *Make the Other Present* Map and Interrogational Function (IF) Loop

goals are constructed, goals are viewed as constructs, constructs about the future. George Kelly created a <u>Psychology of Personal Constructs</u> (1955), a theoretical approach to specifying future events by constructing alternatives or anticipatory templates. Viewing a student's learning goal as a construct in George Kelly's sense allows its placement on an ecologically unitizing dimension, from obviously not ecologically unitized to obviously ecologically unitized. A student constructing a learning goal would be working along this dimension or axis, tightening the construct while working through the communication methodology, in order to specify the goal in order to achieve it. As I worked with children in specific situations and particular cases, we were able to make judgments as to when we had satisfactory learning goals within an ecological framework. We looked at the structure of the goal and key terms, and decided if the learning goal was too broad and unspecific or tight and specified.

Procedures

The purpose of this dissertation was to create and *test* a communication methodology, focused on ecological unitizing, designed to enable upper elementary school students to generate their own appropriate learning goals. The test involved consulting with children as they generated learning goals and then analyzing the results.

In order to test the methodology, I obtained permission from the University of Washington Human Subjects Committee, the Department of Research of my public school district, and the administration of my elementary school. My school district's Coordinator of Research required an opt-out letter on school stationary to parents of potential student participants, the text of which is in Appendix D. Interviews generating learning goals were

conducted within the regular academic curriculum and are reported using pseudonyms and without identifying any of the students involved or their families.

Data Collection

I interviewed children, both my students and other intermediate age children, in the eight months from August 1996 through March 1997, with most interviews occurring in January through March. I needed the full first quarter and more, over nine weeks, from late August until early November, with my students to establish the communicative relationships described in Chapter I in preparation for testing my communication methodology. Then, many months were needed to find time in our complex and highly unpredictable classroom life (Cochran-Smith & Lytle, 1993) to implement the communication methodology with a variety of children. The whole interview process was contextualized in many months of working with the same group of children in the classroom. While the communication methodology seems practical in use, finding time in the classroom for the development/testing stage was difficult. In use, given the communicative relationships described in Chapter I, the communication methodology could be part of the flow of classroom life.

Semi-structured interviews afforded opportunities to consider choices and strategies that, from my chosen perspective on communicative relationships, could not be preplanned. A flexible, reflexive method of questioning allowed the student-teacher team to explore the richness of the students' thoughts (Ginsburg, 1981), to recognize the historically situated, practical nature of the activity (Lannamann, 1991), and to account for the active participation of both child and adult in generating and altering

strategies and constructions (Kauffman, 1992). Structured interviews were inappropriate since they would have required that I anticipate all the issues children might consider important to their learning.

Fourteen interviews were completed. One was a group follow up, and the other 13 were learning goal creation interviews. Twelve of the 13 learning goal creation interviews resulted in learning goals. The thirteenth interview, with "Carmen," did not produce a learning goal. Analysis of that interview was included as it helped in testing the communication methodology. One of the remaining 12 was discarded because the child seemed to be performing for the teacher, not creating a learning goal. That child, "Paul," said a conversation with his sister happened, "About 1995, September 15." Dating an 18 month old conversation so precisely, coupled with the age of his sister, made it unlikely that Paul was using a partnership orientation, and unlikely that he was focused on learning. In the remaining 11 interviews, children seemed to produce a learning goal based on their interests and using a partnership orientation. These interviews were embedded in a year of persistent observation and communication with my students, and a year, also, of studying the data.

A total of eleven students, five boys and six girls, participated in the interviews. One of the children was a fourth grader, five were fifth graders, four were sixth graders, and one was interviewed in the summer between sixth and seventh grade. Five children are Caucasian, three African American, and three have parents from two racial backgrounds.

Two of the interviews were very brief, only minutes long. They followed two students' statements of learning goals developed during a science project. The group follow up interview with four children lasted 15

minutes and was stopped due to other classroom commitments. The other 11 consultations, all with individuals, were generally 25 to 30 minutes long, with one lasting only 20 minutes due to time pressures, and one lasting about 45 minutes and involving many interruptions.

Two children were interviewed off school grounds in private homes. The remaining consultations took place at school, one after the student's school day was finished, the rest during the school day, as we found time, both morning and afternoon. Interviews took place in my classroom, both with just teacher and student present, and with other class members in the room. Other interviews took place while seated in the hall or on stair landings.

All children affiliated with the school district received the opt-out letter. Some took it home in the first day packet of information to parents. Former students took the letter home individually. In those cases, I was more sure the parents read the letter since the children were told individually that their parents had to read it in order for the children to participate. In some cases, children brought their parents to my classroom during Open House to assure me that they knew the children wanted to participate.

I made detailed notations of my consultations with each child. Note taking during interviews coupled with later journal entries (more notes and methodological appendices) seemed sufficient. It was not feasible to audio- or video-tape implementation of the communication methodology because of the unpredictability of capturing the learning moment and the invasiveness of taping on the regular classroom environment. The important ethical advantages in choosing methods that do not invade the classroom and do feature an instructional atmosphere outweigh the advantages of tape

recording the consultations.

I intended to limit the data by snowball sampling of interviews (Lincoln & Guba, 1985) in order to select the greatest variety of learning goal generating experiences. I anticipated selecting six completed implementations of the communication methodology to present. Because the 14 interviews were so varied, and each seemed to provide needed information, I analyzed all but the one that seemed to be a performance designed to please the teacher. Examples are reported from each interview as needed to exemplify the communication methodology. Implementation similarities and differences with different students are discussed.

During the data gathering months, I tried several different ways to introduce the interviews to the children. I started the first interview with "My project is about what you like to learn. I know you like fishing, racing your Soap Box Derby car, baseball. . . . " My methodological notes for the second interview include, "I also realize that I need to clarify that I am taking notes so I can type them up and study what the child tells me." The third interview shows the child asking about my notetaking. My methodological appendix for that interviews adds,

> I think I was a little self-conscious during the interview, since I am finding my way through the communication methodology, and do not have clear answers of what I am doing, and would like to feel more secure with my approach to interviewing. But, then, I remember that the consultation is supposed to help the child specify a learning goal, and in this case, the child did do that at the end.

I had reread the prospectus before this interview, and that reminded me that the ecological unit from which the child's learning

goal comes can arise from a complex of questions: who, what, when, where, why, how, and from a focus on agent, agency, act, scene, and purpose. I think I have not covered potential questions in this interview as well as I might.

By the end of the fourth interview, I realized I needed to create an introductory paragraph, as shown in the part of "Notes and Methodological Appendix for 'Ed,'" included in Appendix E. The result of those considerations is the introductory paragraph in the "Marisa" interview, seen in Appendix F. Here I specified that I would be asking questions and taking lots of notes so I could later think about what teachers need to know about what different children want to learn. A later version, written on January 28, 1997, added two explanatory sentences. "I am trying to find out how kids decide what they want to learn next. I need to talk with kids I know in order to get some help figuring that out." On February 22, 1997, I added further explanation for the child. "I may ask who, what, when, where, why, and how questions. (She groans.) Do you have any questions for me now?" Who, what, when, where, why, and how questions are a part of our fifth grade curriculum, so this student was familiar with some of the challenges of using and including the various question words.

The February 24 introductory paragraph includes information about the Pentad. "I may ask questions about your interest in doing something, about a person or animal who does something, about how something is done, about the setting or background of your interest, or about whys or reasons concerning your interest." The complete introductory paragraph used with "Ronell," is shown in Appendix G. I tried more Pentad information in his credibility check and felt it was too much and confusing. I learned that

providing the children with an appropriate amount of information about what we were doing and why helped both of us take a partnership approach to the interviews. A partnership approach was congruent with my perspectives explained in the Communicative Relationships section of Chapter 1.

Analysis

I grounded my data analysis in the qualitative cognitive tradition. Since the data were my reports of my own and students' cognitions and perspectives, and since this exploratory study involved semi–structured interviews, approaching the data analysis from a qualitative cognitive perspective made sense. The individual student was the level of analysis. My description of a particular teacher–student collaboration focused on ecological unitizing was the unit of analysis.

The constant comparative method (Glaser, 1967) of data analysis has been useful to qualitative cognitive researchers (see, for example, Weiner, 1994). In the constant comparative method, explicit coding procedures are combined with inspection of data for properties of one's theoretical categories. For Glaser, joint coding and analysis are used as a means of more systematically generating theory while allowing discovery and testing of hypotheses. While hypotheses and research questions were not featured in this dissertation which tested a newly designed communication methodology, procedures linking analysis of data with theory seemed useful. As an example, Wilson and Wineburg (1993) move iteratively between theoretical and developmental work in analyzing teachers' written and verbal evaluation of student work. I used this constant comparative method to move back and forth between my design of the communication

methodology, which encapsulated my early articulation of my design and expectations, and my consultations, field notes and journal entries describing my experiences with my students and other intermediate age children. The usefulness and comprehensiveness of the communication methodology as originally designed were tested.

Almost a year passed from the first interview in August 1996 until I felt confident that I had explained the ecological unitizing and communication methodology anticipated in the prospectus. During that year, I repeatedly read the prospectus, interviewed, and tried to analyze the interviews using the constant comparative method (Glaser, 1967). I met with my peer debriefer on February 26, 1997, in order to help me test my working understandings, provide helpful perspective to data analysis, and enhance credibility (Lincoln & Guba, 1985, p. 308). We decided I would choose the interviews I perceived as most successful and try to find patterns and relationships among elements in those. I chose Saul, Sue, Ed, Marisa, Summer, and the group discussion. We talked about putting the seemingly unsuccessful interviews in a group and comparing the two groups. By the end of our consultation, I realized I was missing the obvious. Children in the classroom had been coming to me during a science investigation with learning goals already formulated, and I was not connecting that with my ongoing research. I had been missing the freshness and spontaneity of their work. At that point, I went back to Ed and Marisa and completed the Ed-2 and Marisa-2 interviews.

Data analysis still languished for months until I was able to specify the linkages between the IF and Pentad and to better articulate the reasons for including the Pentad in the design. Trying to place the elements of the IF and Pentad in a one to one correspondence, such as who = agent, what = act, how

= agency, simply provided two lists from the interviews and no ecological unitizing. Also, some question words, like who and what, resulted in student responses which could fit other questions and different Pentad factors. For example, "Teacher: <u>What</u> about manatees are you most interested in right now? Student: Tough question. T: How come? S: Well, mainly, I just think they're the cutest animals in the world. I just like them so much. I don't know <u>why</u>." A What IF produced a Why response.

A third complication arose in trying to label student responses with Pentad factors. "Ed" produced a learning goal in the course of a science project. "If I stand on my hands, will the muscles (in my arms) relax?" A teacher question, "Do you know how to stand on your hands?" produced a nod. "T: Have you done it before? E: I do it all the time. I stand on my head, too." Ed's response could be labeled ACT since Ed stands on his hands and head. It could be labeled AGENT since it is an aspect of the agent's behavior contributing to the learning goal production. It could be labeled SCENE as part of the background out of which the act of creating the learning goal comes. Considering these complications led me to clarify both the relationships between the IF and Pentad factors and my purpose in including the Pentad in the design.

Using the question words allows the child to provide much varied information about his or her interest. Using the Pentad factors helps narrow the interest and allows for the development and articulation of the child's ecological unit by focusing on linkages among elements of the child's interest. Through use of the ecological unit, the student, or student-teacher team, generated the learning goal. Each child's ecological unit, producing his or her learning goal, was developed by using the Pentad factors in a structure

ACT: The actor creates a learning goal.

AGENT: The student who performs the act of learning goal creation. All aspects of his or her being, such as history, personality and behavior, are included.

SCENE: The background, situation or setting used to create the learning goal.

PURPOSE: The reason for the learning goal.

AGENCY: Linkages (relationships) recognized or developed between Pentad factors which are used to produce a learning goal.

Figure 4. Structure of Pentad Factors Focused on Learning Goal Creation

focused on the end product, the child's learning goal. The structure of the Pentad factors focused on learning goal creation is shown in Figure 4 (Compare with Figure 1). Thus, the question words are used to help a child tell, or discover and tell, about his or her interests. The Pentad is used in showing relationships among the elements of the child's responses which produce a learning goal. Together they make the Interrogational Functions (IF). This new listing of Pentad factors focused around the learning goal as act is actually part of the results of the data analysis. It is included in this chapter, however, to emphasize that only after this insight could data analysis proceed toward revising the communication methodology. Using the constant comparative method meant I was moving between data analysis and theoretical categories (Glaser, 1967). Through many cycles of data analysis and theory review, I was able to create the revised communication methodology.

Limitations existed in the analysis process. Descriptions of one's thoughts may disrupt thinking or produce a distorted description (Perkins, 1981). The analysis of my data depended on thinking about my own and my students' thinking. My initial conceptual framework limited my attention at first to certain aspects of the data to the exclusion of other important areas. Particularly vivid or unusual comments were at times given more weight than wise when trying to consider the otherness of each child, when trying to *make the other present* (Friedman, 1976).

Advantages of this process included conscious grounding in historical contexts and material practices of teacher and children (Lannamann, 1991), and recognition of the active participation of both researcher and researched as they construct their multiple changing realities (Kauffman, 1992). The potential for situational understanding and broad applicability fueled my

interest in testing the communication methodology.

Trustworthiness Issues

This dissertation was a design project, not a test of hypotheses or research questions. The test of the design could not rely on discussions of reliability and validity imported from quantitative research, yet attention to the trustworthiness of the design and eventual results was imperative. The following paragraphs overview criteria for trustworthiness of qualitative studies. This section also includes discussion of specific ways tests of this design are trustworthy, or "worth paying attention to" (Lincoln & Guba, 1985, p. 290).

Four Criteria for Trustworthiness of Qualitative Studies

According to Lincoln and Guba, professors of education with background in both quantitative and qualitative design and research, questions of internal validity, external validity, reliability and objectivity "are themselves dependent for their meaning on the conventional axioms, such as naive realism and linear causality. (Yet) . . . criteria defined from one perspective may not be appropriate for judging action taken from another perspective" (1985, p. 293). The perspective of teacher-student communicative relationships developed in this dissertation emphasizes "the assumption of multiple constructed realities" (p. 295). Truth value of research from such a perspective, Lincoln and Guba say, depends on representing those multiple constructions adequately by reconstructions that are *credible to the constructors of the original multiple realities* (p. 296, italics in original). Thus, credibility, rather than internal validity focused on "reality," is a criterion of trustworthiness.

While traditional, quantitative studies seek to generalize from a

representative sample to a population, qualitative research is not meant to generalize to populations.

> The argument for qualitative research has never been that its claims for generalizability are exceptionally strong. Qualitative research is best for understanding the processes that go on in a situation and the beliefs and perceptions of those in it. Still, qualitative researchers can do things to increase the broad applicability of their findings. . . . providing rich, 'thick' description . . . intentionally sampling for theoretical relevance. . . . (Firestone, 1993, p. 17, 22)

This qualitative study focuses on each individual child who creates a learning goal. Rather than external validity, or generalizability, a question of transferability may be raised. "Transferability inferences cannot be made by an investigator who knows *only* the sending context. . . . anyone seeking to make a transfer is to accumulate *empirical* evidence about contextual similarity; the responsibility of the original investigator ends in providing sufficient descriptive data to make such similarity judgments possible" (Lincoln & Guba, 1985, p. 297-298, italics in original). While I am not claiming generalizability for this communication methodology, I have provided sufficient descriptions of individual cases to allow others to make judgments about similarity to their own research contexts. As other investigators couple these rich descriptions with information about their own contexts, they may determine transferability to those settings.

Quantitatively based studies demonstrate reliability by replication, assuming "something tangible and unchanging 'out there' that can serve as a benchmark. . . . " However, multiple constructed realities are "ephemeral and changing. . ." (Lincoln & Guba, 1985, p. 299). Lincoln and Guba suggest a

criterion of <u>dependability</u>, "taking into account both factors of instability *and* factors of phenomenal or design induced change" (1985, p. 299). Finally, Lincoln and Guba cite Scriven to emphasize a concept of objectivity focused on the <u>confirmability of *data*</u> rather than a more positivistic approach to the objectivity of the *investigator* (p. 300). So, criteria supporting the trustworthiness of a qualitative study include credibility, transferability, dependability, and confirmability. Descriptions of steps taken in meeting Lincoln and Guba's (1985) trustworthiness criteria follow.

<u>Credibility.</u> Credibility, rather than internal validity, is a criterion of trustworthiness. In qualitative research, multiple constructed realities can be represented by reconstructions that are *"credible to the constructors of the original multiple realities"* (Lincoln & Guba, 1985, p. 296, italics in original).

Lincoln and Guba consider formal and informal member checks as "the most crucial technique for establishing credibility" (1985, p. 314). The students who develop learning goals should be able to recognize those goals "as adequate representations of their own (and multiple) realities. . ." (1985, p. 314). While "(t)riangulation is a process carried out with respect to *data*. . . . (m)ember checking is a process carried out with respect to *constructions*" 1985, p. 315-316, italics in original). Lincoln and Guba suggest that credibility "is satisfied when source respondents agree to honor the reconstructions; that fact should also satisfy the consumer" (1985, p. 329). To develop credibility, I completed follow-up interviews with a majority of the children interviewed. Most follow-ups were done with individuals. One group follow-up interview involved four of my current students to check the credibility of my transcriptions and to check the usefulness of teacher explanations given at the start of interviews.

Credibility is also developed through field activities such as prolonged engagement, persistent observation, and triangulation of sources. I am involved with my students in the classroom over months of time and persistently observe them. I triangulated sources (intermediate level children) by consulting not only students in my classroom, but also former students, and friends and relatives. To further enhance credibility, two children had never been my students, five were my current fifth grade students during the 1996-1997 school year, and four had been my fifth graders during the 1995-1996 school year.

I was the only investigator doing data gathering for this dissertation. "If the design is emergent, and its form depends ultimately on the particular interaction that the investigator has with the phenomena . . . then one could not expect corroboration of one investigator by another" though an effectively communicating team of investigators could be possible (Lincoln & Guba, 1985, p. 307).

While the design creation and testing of my communication methodology were initally the work of one investigator, an additional technique used to establish credibility is peer debriefing. Peer debriefing encouraged "searching questions by an experienced protagonist," provided opportunities to test my working understandings, to "develop and initially test next steps in the emerging methodological design," and for catharsis (Lincoln & Guba, 1985, p. 308; *methodological* used here in Stewart's, 1993, meaning of "steps to be followed"). My intermediate supervisor, based in the district's central office, with whom I had a staff relationship, and who is in the midst of her own doctoral program, offered assistance with my research. She served as peer debriefer, resulting in the consultation described on p. 54.

Lannamann (1991) and Kauffman (1992) present examples of situated, historical approaches to qualitative research which address the effect of the investigator on process and data. Researchers in these kinds of approaches are not considered "objective" as they may be in quantitative research. Situated, historical approaches emphasize that researchers need to provide adequate information about their own assumptions and also need to explain that data legitimately and essentially includes researchers' interactions and responses. Lannamann (1991, p. 195) emphasizes that research should recognize "an expanded unit of observation, grounded in historical contexts and focused on material practices." He calls for "a fully reflexive form of questioning that would expose not only the immediate questions and concerns related to our theories and methods but also the hidden assumptive base that guides our efforts" (p. 198). My assumptive base is explained in the "Communicative Relationships" section of this dissertation.

Kauffman (1992) presents another situated approach and emphasizes the multiple constructed changing realities of researcher and researched, who are active participants in her ethnographic interviews. For example, she accounts for her reconstructions of "woman artist" by relating the negotiation of interview strategies involving *both* researcher *and* researched as gendered, racial, political, social-class beings. Her alterations of strategy resulting from participants' responses to her requests are a part of her data. As explained in my definition and critical survey of pertinent literature sections, and as implemented in the design, both teacher and child were active participants in my planned research process.

Transferability. In order to establish trustworthiness, questions of transferability rather than questions of external validity or generalizability,

are raised in qualitative research (Lincoln & Guba, 1985). "Transferability inferences cannot be made by an investigator who knows *only* the sending context. . . . anyone seeking to make a transfer is to accumulate *empirical* evidence about contextual similarity; the responsibility of the original investigator ends in providing sufficient descriptive data to make such similarity judgments possible" (Lincoln & Guba, 1985, p. 297-298, italics in original).

My descriptions of setting and children, along with the field notes and journaling excerpted in Chapter III were intended to provide "the widest possible range of (relevant) information for inclusion in the thick description . . . (developed from) . . . purposeful sampling" (Lincoln & Guba, 1985, p. 316, parentheses added). Thick description provides the data base to make "transferability judgments possible on the part of potential appliers" (p. 316).

Dependability and Confirmability of Data. Instead of demonstrating reliability by replication of an unchanging reality as might be done in quantitative research, Lincoln and Guba suggest a criterion of dependability, "taking into account both factors of instability *and* factors of phenomenal or design induced change" (1985, p. 299). Instead of a positivistic approach to the objectivity of the *investigator*, Lincoln and Guba cite Scriven to emphasize a concept of objectivity focused on confirmability of *data* (p. 300).

I kept an audit trail as suggested by Halpern, including raw data, data reduction and analysis products, data reconstruction and synthesis products, process notes, materials relating to intentions and dispositions, and instrument development information, as applicable (cited in Lincoln & Guba, 1985, p. 319-320). The audit trail allows examination of the process of the inquiry and of the product of the inquiry, including data, findings,

interpretations, and recommendations. An audit of process could attest to the dependability of the inquiry while an audit of product could establish confirmability (Lincoln & Guba, 1985, p. 318).

Summary

The four trustworthiness issues introduced here include credibility, transferability, dependability, and confirmability of data (Lincoln & Guba, 1985). They are provided as appropriate alternatives to the reliability and validity issues discussed in quantitative research. Applications of these criteria to my dissertation are discussed further in Chapter IV.

Chapter III: Results

Chapter III moves from the revised Pentad of Chapter II (Figure 4) to the revised communication methodology (Figure 8) which includes that Pentad. Both the interviews which are based on and developed from my original communication methodology and the new insights and perspectives that led to the revised communication methodology are discussed here.

<u>The Generator</u>

Data gathering and analysis guided me to create an Interrogational Function (IF) as the generator for this communication methodology. An Interrogational Function (Carter & Richey, 1961/1962) in this communication methodology is a sentence containing both a question word (who, what, when, where, why, how) and one or more of the five interrelated factors of Burke's Pentad (act, agent, agency, purpose, scene). The Pentad factors all focus on creation of the ACT, creation of the learning goal, as shown in Figure 4.

Interrogational Function (IF) = Question Word (Q) + Pentad Factor(s) (P)

For example, "What (Q) do you like to fix? (P-Agent, being)"

"How (Q) can electrical things be greasy? (P-Scene)"

Use of question words and Pentad factors together helps to attend to the student. Buber says, to *make the other present* (Friedman, 1976). This approach offers students the safety that arises from respect and caring, helps recognize the uniqueness of each child, and provides freedom for each one to speak out for his or her own chosen options (Foss & Griffin, 1995). Using the generator guides the student-teacher team to create or articulate the ecological unit through which the learning goal comes.

Teacher IFs and student responses from Summer's interview illustrate

the generator and reply. Summer's explanations revolve around her learning goal, "How do the constellations get all the stars grouped together and form one big picture?"

"Teacher (IF): When (Q) did you start that (looking at the sky)? (P-Agent, history)

Summer (Response): I wanted a telescope (P-Agent, history) last year (P-Scene) and got one (P-Agent, history) and started looking at stars in the sky right when I got it." (P-Agent, behavior)

Another IF and response from the same interview follows.

"Teacher (IF): One day you said you were really interested in science. (P-Agent, being/personality) How did that happen? (Q)

Summer (Response): Planetarium. (P-Scene) Last year I never did science. (P-Agent, history) I like the stars and all those things. (P-Agent, being) I like learning about science." (P-Agent, being)

As shown in the above examples, the Interrogational Functions include both question words and Pentad factors. The examples also show four categories, being, history, personality, and behavior, of the Pentad factor, Agent (suggested by Burke, 1975; Littlejohn, 1992; Nichols, 1963). I introduced these categories on page 40 of this dissertation, and after developing Figure 4 found them helpful in sorting the multitudes of information children contribute about themselves (Agent) as they develop their ecological units.

In my original formulations, the teacher asked the IFs. The children showed me that they, too, create IFs. Sometimes they do this on their way to learning goals, other times they create IFs after they have stated their learning goals, but while they are still explaining the ecological units important to them in creating the learning goals. These insights helped me to formulate

one part of the revised communication methodology in terms of "Engage Student-Teacher **Team** in **Cycles** of Interrogational Functions and Responses" rather than a more linear approach of "teacher question, student response." The next two examples of student IFs are also Summer's, and were stated near the end of the consultation, after she had articulated her learning goal several times, using slightly different wordings each time.

"Summer (IF and Response): And 'why,' (Q) Well, I think science is neat because all these stars are different from other stars and they can get bunched up into a constellation. (P-Purpose)

Teacher: Do you think I understand your interest so far?

S: Um, yeah.

T: Do you think you've explained all the parts you need to explain to help me understand?

S (IF and Response): One more 'how.' (Q) On the Fourth of July, when we shoot off fireworks, we shoot off a lot and I look up in the sky and see a whole bunch of stars." (P-Scene)

Summer mentions the Pentad factor once for the IF and response, since she is stating both. The text of her interview is in Appendix H.

Both Summer's interview, and Danny's, part of which follows here, show the teacher does not know the answers to IFs which relate to the child's background and experience, but the child knows or can create answers. Danny wanted to figure out how to fix the throttle on his remote control car. Early in the consultation he said that he liked to fix things. I asked him about this, hoping he would explain his interest in order to specify and tighten his learning goal. Several cycles of IF and Response (What do you mean?) were needed to explain what the teacher could not answer, but the child could.

"Teacher (IF): So, fixing things. What (Q) do you like to fix? (P-Agent, being)

Danny (Response): Electrical things. Um, things that you get your hands dirty with. (P-Agent, being)

T (IF): What (Q) do you mean? (P-Agent, being)

D (Response): Sticking your hands in like, grease, and getting them really filthy. (P-Agent, being)

T (IF): I don't understand. How (Q) can electrical things be greasy? (P-Scene)

D (Response): Well, electrical or mechanical things. Like two things, I guess." (P-Scene)

Danny soon explained that he wanted to talk about electrical things, specifically, his remote control car.

Transactions Supporting the Generator

While the IF is the key in generating ecological units and learning goals in this communication methodology, interviews show three other useful collaborative communication moves. These are Yes/No questions (YN), Clarifications (C), and Diversions (D). Examples of each follow.

Yes/No Questions

Yes/No questions (YN) help the student-teacher team clarify needed information and tighten up the focus in proceeding toward a learning goal. Ed, one of my students, likes snakes. He wants to learn about snakes' longevity. "I wonder if they're gonna die or not . . . and I wonder how long do they live." Three YNs allow him to specify part of the ecological unit he used in creating these learning goals.

"Teacher (YN): Have you ever had a snake die when you had it?

Ed (Response): Yeah, (YN response) I had some garter snakes that I kept and they died 'cause when I first started, he told me how to catch 'em and he

didn't tell me they gotta have holes and I put a lid on 'em without holes. (P-Agent, history)

T (YN): And they died.

E (Response): (Nods).

T (YN): Did you ever have any other ones die?

E (Response): (Shakes head). (YN response) 'Cause mostly you usually out catch 'em and make 'em race and let 'em go and I teach 'em how to do tricks." (P-Agent, history)

This interchange of Yes/No Questions and responses allowed Ed to explain an aspect of his experience which was important to him, and which helped guide his learning goal creation.

Bess talked about liking to write stories. This sequence includes two YNs and one IF.

"Teacher (YN): Do you write stories now?

Bess (Response): (Nods)

T (YN): Can you tell me about one you're writing now?

B (Response): About a four legged monster. (Yes is implied. P-Agent, behavior is added.)

T (IF): Tell me about it. ('What [Q] is your story about' [P-Agent, behavior] is implied.)

B (Response): So, far, two kids, brother and sister, are walking down the street on Halloween. They're out extra late. They see a big monster. Seeing (?) things. It's chasing them. It chewed on the boy. Then they woke up and it's a dream." (P-Agent, behavior)

Yes/No Questions seem helpful in tightening ecological units around learning goals when I need to check my understanding of what a child is

saying. Yes/No questions also offer one way to find out if something remains unsaid on a particular topic which the child wants to add.

Clarifications

Clarifications (C) popped up when one of the participants attempted to clarify something about the interview process. On February 5, 1997, during the interview with Summer, I was trying to increase emphasis on the Pentad factors. During my attempts, I sometimes repeated Pentad factors previously discussed. This seemed to confuse Summer. The following interchange took place.

"Teacher: How about, 'When did you get interested in constellations?'

Summer: This grade. (She seems puzzled.)

T (C): Sometimes I ask the same question again because I'm trying to puzzle this out.

S (Response): Ok."

Later, as I was watching the clock, I asked:

"Teacher (C): We have a little time left. Is it ok to keep talking?

Summer (Response): Um hum."

Sometimes a student tried to clarify something about the interview process. Sue was a fourth grader interested in manatees. The Clarification (C) requested during the beginning of her interview is italicized.

"Teacher: Manatees.

Sue: OK.

T: How did you get interested in manatees?

S: I was watching TV and saw this really weird looking animal on TV and I watched, but then I got to the bad part where they get run over by motorboats.

T: So, then how did you learn more?

S: After I learned their name and watched the TV show, when I went to school the next day, I checked out a couple of books about manatees and read them. *I cannot read that. (Referring to my notes.)*

T: *It's pretty sloppy.*

S: *Can you read it?*

T: *If I don't wait too long.* So, what most interests you about manatees?" Sue apparently needed to recognize my note taking and to ask about its usefulness.

Clarifications are useful in fostering a partnership orientation in this revision of the communication methodology. They allow all parties in the interview to ask for and get information they want or need about the interview process as they construct their multiple changing realities (Kauffman, 1992; Lannamann, 1991).

Diversions

Diversions seem to be off track, but are useful in helping the student-teacher team collaborate during the interview. While the consultation is in process, it is sometimes difficult to know if a transaction will lead to loosening or tightening the ecological unit, or if it is focused on the eventually stated learning goal. Even when they seem unrelated or indirectly related to the learning goal, diversions seem important to the child. As stated in the Communicative Relationships section of Chapter I, I try to foster relationships with students grounded in Buber's inclusiveness and acceptance of the otherness of the child (Friedman, 1976), in respectfully providing freedom for others to speak for their own options (Foss & Griffin, 1995), and in recognizing that the interviews trigger, not specify, changes in

the child (Maturana & Varela, 1987). Respect for the child, then, means diversions are important in the interview. In the following excerpt, Sue inserted a reference to her midwest animal report into her discussion of manatees. The Diversion (D) is italicized.

"Sue: You know how I find out stuff? Channel surfing and books. Sometimes I turn on National Geographic. *That's how I got my midwest animal for my report--coyote.*

Teacher: What did you do?

S: Make a milk gallon animal. Make a title for a book. Write a one page summary of the animal: characteristics, what it eats, where it lives, does it have eggs or live babies. Draw a picture of the US and anywhere else they live and shade where they live. Draw a picture of the coyote and its habitat.

T: Have you ever done that about manatees?

S: Uh uh. This was a midwest animal report. You have to do animals from the midwest.

T: If you did a manatee report, what would you want to include?

S: Probably the same thing I did with coyotes. (Lists the same items used for the coyote report.) Basically the same thing.

T: What of those things don't you already know about manatees?"

Sue wanted to share her experience in writing animal reports, even though the report was not about manatees. She felt free to speak to her interests and related those experiences to learning about manatees.

Marisa, a fifth grader, wants to gain the ability to get her story ideas down on paper before they slip out of her head. On her way to the learning goal, she talks about her feelings and desires. She wants to be an author and

express her feelings in writing. The Diversion (D) is italicized in the segment of the interview reproduced below. Being on TV was important to her desire for fame, but does not seem a part of her ecological unit in the completed interview about getting story ideas down on paper. She contributes this diversion early on, but does not link TV, yelling out, the bar, penguins, and the library into the consultation any further. She does, however, continue to talk about her "likes."

"Teacher: So, you want to be famous?

Marisa: Yep, I wanna grow up to be rich so I can pay taxes and get other people to be writers, too, and I wanna be famous because no one pays attention to me sometimes, *and I was on TV. At the library a little program was being taped and I got on it two times and my brother once. And at (place) we sat in a group and they had us yell out what we liked. My brother liked sharks and I liked penguins. And at the bar, kids allowed, they had shirley temples for me and I got on.*

T: *How?*

M: *They were filming the game and I just kinda reached up and put my hand in and got number one up.*"

Diversions happen in consultations grounded in the partnership orientation I have described and used in this dissertation. Children who use diversions give one indication that they are in partnership with the teacher.

Ecological Units

As stated in Figure 4, I am using the Pentad factor, Agency, to show the linkages or relationships developed among Agent, Scene, and Purpose which are used to produce a learning goal, Act. Each child articulates elements from at least two Pentad factors and links them in producing a learning goal. The

elements and the relationships among them are the ecological unit important to that child in producing a learning goal. Examples of elements and linkages follow.

Marisa-2

Marisa's second interview is the most brief of all. She states a learning goal during work on a science project, and I ask how she came up with the goal. The entire text of that very brief conversation follows.

"2-26-97 Marisa: If you have a bruise, is your muscle bruised or your bone bruised? (Learning Goal)

3-10-97 Teacher: Earlier, when you were working on your muscles report with your partner, you asked, "If you have a bruise, is your muscle bruised or your bone bruised?" You pointed to a bruise on yourself. How did that question come up?

M: I fell and got a really bad bruise on my leg, and we were talking about bones and muscles, and it popped into my head.

T: And how did you find your answer?

M: I went home and asked my Mom and Dad."

I wrote Pentad factor word formulas to diagram one aspect of children's ecological units, showing which factors children use and how many elements they explain for each. An asterisk (*) means a distinct element. The plus sign (+) stands for Agency, the links between elements, which children state in their explanations.

Marisa links two elements of Scene, the currently assigned muscle report and the past bone report (**Scene****), with two elements of Agent, her current bruise on her arm and her past bad bruise on her leg (**Agent****), to create her Act, the learning goal. The Agency, the means to the learning goal,

is shown in her statement, "I fell and got a really bad bruise on my leg, and we were talking about bones and muscles, and it popped into my head."

Scene** + Agent, history** = Act

Marisa-2 provides a complete, though brief interview. She includes the elements she selects as important to her ecological unit, the fact that she links them, and her statement of how the elements are linked. Elements and the relationships among them are parts of an ecological unit(Bateson, 1987).

<u>Saul</u>

Saul explains his ecological unit and learning goal during a much longer consultation about baseball and pitching. He wants to learn to throw downward so the pitch looks like a strike instead of a ball. He links ten elements of Agent with five elements of Scene and three of Purpose to produce his learning goal. Saul makes strong, repeated links among his own baseball experience, the role of the catcher (his favorite position), and the role of the pitcher in producing a strike. He gives personal examples of his own experience as a baseball player, just as many children offer specific examples from personal experience when they develop their ecological units. At one point, Saul says making the pitch look like a strike "Depends on the catcher," who might have to put his glove up and so make the pitch look like a ball. Shortly after that, it "depends on the pitcher who throws it."

Agent, behavior******(includes 4 examples) and Agent, being**** +

Scene***** + Purpose*** = Act

Figure 5 shows the elements Saul links to produce his learning goal. The text of the interview is in Appendix I.

<u>Sue</u>

Sue wants to know "what (manatees) feed their babies. Their stomachs

Agent (10): plays catcher, favorite position (being)

second base, second favorite position (being)

center, third favorite position (being)

example 1: good plays at catcher (behavior)

example 2: a center field play made an out (behavior)

example 3: a center field play made an out (behavior)

personal limitation 1: too short to play first (being)

personal limitation 2: pitcher throws down, catcher throws (behavior)

future plans, be catcher (behavior)

example 4: how catcher throws someone who's stealing out (behavior)

Scene (4): watched TV baseball

Grandma asked if he wanted to be in baseball (yes)

two years baseball minors, one year majors, team placed each year

jersey #7, lucky number

help available, friends, mom, "Matt," maybe Dad, practice

Purpose (3): improve play (not good enough to pitch, too short for first)

"I don't want to walk a whole bunch of people and let them score."

"I want to learn a whole bunch of positions I haven't played yet."

Figure 5. Elements Saul links to create an ecological unit for his pitching learning goal.

haven't developed, and they can't eat seaweed." Her ecological unit is heavily weighted on the Agent's (her) background knowledge about manatees. She links 19 background facts (Agent, history), with two elements of Scene (her sources for Agent's facts), and two elements of Purpose to create the ecological unit through which her learning goal is produced. I remember thinking that Sue would never come up with a learning goal, just go on and on telling facts she already knew. She states her learning goal at the very end of the interview, after all that knowledge output. For Sue, during that consultation, learning seems to have meant acquiring new facts.

Agent, history****************** + Scene** + Purpose** = Act**
Figure 6 shows the elements Sue links to form her learning goal.

<u>Marisa</u>

Marisa wants to learn to get her story ideas down on paper before they slip out of her head. She says, "See, when I try to write stories, it pops into my head and I write about half of it and I can't remember what comes next and I try to make it up but it doesn't come to me." Marisa seems to balance her ecological unit, involving elements of her self (Agent), both being (6) and behavior (11, including 4 specific examples of her writing), with strong statements of Purpose (3, which she links with Agent), and much background about her nonschool life, Scene (11). Agency shows particularly strongly in her explanations of Purpose–Agent links and Scene–Agent links. Marisa explains that she has read a certain book and has seen the movie about it. She has other books by this author and a biography about the author. These experiences make her want to write like the author, to turn her journal into a book, and to tell others it's ok to express their feelings. Her parents offer much verbal support and give gifts to encourage Marisa's writing interest.

Agent (19): gentle

motorboat enemies

no teeth (use outer lips)

holes where ears are

moved into water to avoid predators and evolved into what they are

some people try to save manatees

some people make proper toys (milk cartons with tennis balls)

toys (pop cans)

eat from bottom of sea, kelp, seaweed, moss makes them sick

example: animal report, coyote

live babies

shy animal

live in ocean

migrate to a bay (late summer or fall, back in spring)

like to live in murky water

live in lagoons

catnap underwater

can stay underwater 10 minutes

use flippers, nose hole things, plug noses to keep from drowning

when come up, unplug noses, get fresh air, when go down, plug again

Scene (2): TV shows (channel surfing)

library books

Purpose (2): "I think they're cute."

"I like them."

Figure 6. Elements Sue links to create an ecological unit for her manatee learning goal.

She finds the same book at school, has the support of a friend to write, and thinks writing could give fame. Excerpts indicating these links follow.

"Marisa: Well, (author) talked about her life growing up in *(book title)* (P-Scene) and I've seen the movie also. (P-Agent, history) It makes me wanna write (P-Purpose) because she expresses her feeling so much in the book (P-Scene) and it makes me wanna do that, too. This summer I wrote in my notebook every day what I did (P-Agent, history) and some day I wanna turn that into a book (P-Purpose) and she's just a wonderful person, I think. (P-Agent, being)

. . .

M: To be a writer so I can express my feelings and tell people it's ok to do this. (P-Purpose)

T: So, far it seems like your folks influenced you.

M: Yeah, my dad—I kept saying I wanted to read novels (P-Agent, being) and Dad said I had to read *(book title)* (P-Scene) and I was coming across it in the bookshelves (P-Scene) there (at school) and said I wanna read it. (P-Agent, being)

T: What do you and what have you learned already about expressing your feelings in writing?

M: It's ok to tell people what you feel and express it in writing and not hold it in and it's ok to do what you want and do many things." (P-Purpose)

Agent, being**** and**

Agent, behavior/history*********(includes 4 examples) +**

Scene********* + Purpose*** = Act**

The challenge in this analysis was distinguishing the different Pentad factors since Marisa makes so many repeated links among factors. I made my

categorization decisions focused on Figure 4 and the chronology of the interview. Figure 7 shows the elements Marisa links in making her learning goal. The text of the complete interview with Marisa is in Appendix F.

Summary

To this point, the Results have moved from the revised Pentad of Chapter II through the Generator, Transactions Supporting the Generator, and Ecological Units sections of Chapter III. I have explained that learning goals are generated in this communication methodology through required cycles of Interrogational Functions (IFs) and responses. In this communication methodology, IF-Response cycles are necessary for the communication methodology to function properly to foster students' creation of learning goals. I explained what cycles of IFs and responses look like in the Generator section.

Using the constant comparative method (Glaser, 1967) to move between theory and data analysis, I discovered three collaborative communication moves that the student-teacher team uses along with the IFs and responses. These are Yes/No Questions, Clarifications, and Diversions. Examples of these moves are presented in the section called Transactions Supporting the Generator. Yes/No Questions help the student-teacher team clarify needed information and tighten up its focus when moving toward a learning goal. Clarifications allow the student-teacher team to clarify something about the interview process. Diversions may seem off track, but occur as the teacher accepts the otherness of a child, respectfully allows a child to speak for his or her own options, and recognizes that the interview triggers changes in a child not specified by the teacher.

Once I viewed an interview as being produced through some

Agent (being, 6): author is wonderful

> I will read (book)
>
> I want to read novels
>
> I want to be famous to pay taxes
>
> > to get others to be writers
>
> it's ok not to hold your feelings in

Agent (history/behavior, 11): read (book)

> saw (movie)
>
> example 1: wrote in journal in summer
>
> have 3 volume set
>
> have volume of author's life
>
> got (book) for Christmas
>
> work with friend on writing books
>
> example 2: wrote short story
>
> example 3: wrote book no. 1
>
> example 4: wrote book no. 2
>
> get ideas while watching TV, playing monopoly, sitting

Purpose (3): makes me want to write and express my feelings--she did, I do

> want to turn journal into a book
>
> want to be a writer, to express feelings and tell people it's ok to do so

Scene (11): Mom and Dad talked about (book)

> at library, was on TV taped show
>
> at bar, was in filming, on TV
>
> (Scene is continued on next page)

<u>Figure 7</u>. Elements Marisa links to create an ecological unit for her writing learning goal. (continued next page)

Scene (11): (continued from previous page)

    Mom recommended (book)

    Dad recommended (book)

    (book) was on school shelves

    TV show 'Mommy Mart'--choose your own mom

    character in (book) has ideas in her head

    Mom and Dad say I get wonderful ideas

    author expresses her feelings in (book)

<u>Figure 7</u>. Elements Marisa links to create an ecological unit for her writing learning goal. (continued from previous page)

combination of these communication moves, I could analyze the data in terms of ecological unitizing. The Ecological Units section just above this summary presents examples of ecological units from the Marisa-2, Saul, Sue, and Marisa consultations. Analyzing each interview meant referring to theory and data to decide how the Pentad factors were revealed in different children's explanations. I considered each child's involvement in the interview process in terms of 1) the child's stated learning goal, 2) the Pentad factors, 3) the child's sequencing of the interview and iterations around his or her learning goal, 4) the links the child made among elements categorized into the Pentad, and 5) my original design. Once I had Figure 4 in focus, along with the learning goal, I could identify elements of the child's ecological unit and the relationships among those elements as stated by the child. The elements and relationships formed the child's ecological unit. The four ecological units shown above are widely diverse in number of elements, types of elements, types of linkages, and number of linkages. Yet, these widely diverse consultations can be described in terms of Pentad factors and linkages among elements producing learning goals.

The tightening or loosening of ecological units remains to be explained before I present the revised communication methodology and move to Chapter IV for further discussion. As stated in Chapter II, viewing a student's learning goal as a construct in George Kelly's (1955) sense allows its placement on an ecologically unitizing dimension, from obviously not ecologically unitized to obviously ecologically unitized. A student constructing a learning goal would be working along this dimension or axis, tightening the construct while working through the communication methodology in order to specify the learning goal. Tightening an ecological unit can lead to a learning goal.

Loosening an ecological unit can lead away from a learning goal. Discussion of tightening and loosening, an important aspect of the communication methodology, follows.

Tightening and Loosening

Most of the interviews produced clear learning goals. As those interviews progressed, the children contributed more and more information about themselves which ended up helping to specify, focus, or tighten the ecological unit around learning goals. Two interviews that I analyzed, those with Carmen and Bess, did not seem to have this tightening activity. Carmen obviously did not produce a learning goal during the consultation, and, while Bess did state a learning goal, I could not see how the goal she stated related to the ecological unit I thought she was making. In this section, Carmen's and Bess's interviews are considered.

Carmen

I asked to interview Carmen because of her long standing interest in violin. However, she redirects the interview to "What you wanna be when you grow up or subjects." This leads to "medical doctor." She talks about being a doctor for well patients, "well, not a surgeon, someone who checks people to make sure they're not sick." After this statement, her interests seem to more strongly focus on performance goals than other interviews. "You get your own office sometimes, you get enough money to pay bills and things." She wants to work in a big hospital to have "a lot more people to talk to and make friends with and it's easier and more departments and it's bigger, more room." Selections from her consultation follow.

"Teacher: Hum. What would you like to learn now that would help you be a
    doctor?

Carmen: How hard it would be.

T: Did you say hard?

C: Yeah, hard, if there's a lot of stress. Maybe how much you earn being an MD, maybe how long you'd be in some parts, maybe have some people come talk about being a medical doctor that are experienced.

T: If a medical doctor came to talk to you what would you think of to ask them?

C: How many people get a certain disease and what you do if someone has a disease if you take 'em to a certain place and what you do there.

. . .

T: Is that enough, what I've chosen? I'm gonna ask a little bit different question. How has your mother influenced you to be a doctor?

C: Um, she because, you learn a lot of stuff. She has, um, she didn't influence me that much. But, the things I've learned from her about being a medical doctor, like how much you get paid. Cause if you have a family you need that much money. and just the studies.

. . .

T: So, um, what are you most interested in learning now about being a medical doctor?

C: Be a professional violin player.

. . .

T: What would you most like to be in the whole world for a job when you grow up?

C: Um, maybe a flight attendant.

T: What makes you like flight attendant?

C: Like, riding in airplanes, and it's fun because you can get to help out in

airplanes and get to go around inside and outside of airplanes."

While Carmen talks about well-patient doctoring, and about learning to be a medical doctor, she moves to violin player and then to flight attendant. This is an example of loosening, rather than tightening, an ecological unit. Without appropriate tightening of the ecological unit, a learning goal was not produced.

<u>Bess</u>

Bess wants to talk about things she likes to write. She links many elements of her being and personality (she likes to write, she likes to read, she would like to be an author or illustrator when she grows up, she would like to share stories with her family and friends), with specific examples of stories she has written (man who stole apples, monster story, Candyworld), with elements of Scene (her aunt write stories, her friend laughs at her stories, she gets story ideas from magazines). So far, apparently, so good, in tightening her ecological unit toward a learning goal. But, while she could talk about what she wanted to write next, or what she might want to be when she got older, the learning goal that she states is, "What authors do in their free time or something."

"T: Given your interests, my project is about trying to find out how kids decide what they want to learn next. What would you like to learn next?

B: What they do in their free time or something.

T: Authors?

B: (Nods)

T: Is there anything about writing stories you'd like to learn how to do?

B: No.

T: Is there anything else you'd like to learn about authors?

B: No."

I noticed that I used many cycles of Yes/No questions with Bess, and often received a nod or "I dunno." She moved before I was able to do a credibility check with her. While Bess seemed to engage in ecological unitizing in discussing her background, being and experiences, her stated goal did not seem to relate to her writing. Partnership may have meant accepting that the consultation would not produce a learning goal, in fact, accepting that the links I wanted were not forthcoming.

A Communication Methodology Based on Ecological Unitizing

The purpose of this dissertation was to create and test a communication methodology, focused on ecological unitizing, designed to enable upper elementary school students to generate their own appropriate learning goals. The design shown in Chapter II was tested during the 1996-1997 school year. Data analysis revealed inadequacies in the original design which resulted in the revised communication methodology shown in Figure 8. The interviews analyzed led to the revised communication methodology, and the interviews were analyzed using the revised communication methodology. The constant comparative method (Glaser, 1967) moves between theory and data analysis, and this is the analysis approach I used.

Begin with

Student Interest

Engage Student-Teacher Team in Cycles of

Interrogational Functions

Interrogational Function (IF) = Question Word (Q) + Pentad Factor(s) (P)

and Responses

Supported with Cycles of

Yes/No Questions, Clarifications, Diversions

and Responses

Linked (Agency) to the IF--Response Cycles

While Keeping in Focus

Child's Ecological Unitizing of Pentad Factors (Agent, Purpose, Scene)

and

Child's Tightening of Ecological Unit (Agency)

Which Child Links (Agency)

to the

Stated Learning Goal (Act)

Figure 8. Communication Methodology Focused on Ecological Unitizing Designed to Enable Upper Elementary Students to Create Their Own Learning Goals.

Chapter IV: Discussion, Conclusions, Limitations, and Recommendations

The purpose of this dissertation was to create and test a communication methodology, focused on ecological unitizing, designed to enable upper elementary school students to generate their own appropriate learning goals. My interviews with students show, as emphasized in the Introduction to this dissertation, that creating learning goals requires a communication methodology rather than a method or checklist. Knapp, Shields, and Turnbull (1992) conclude their study of academic challenge for children of poverty by emphasizing a position appropriate for my mixed socio-economic classes as well:

> No checklists of behaviors, questioning styles, instructional strategies or ways of connecting instruction to students' backgrounds exists—or could exist—that would bring teachers closer to the goal of offering the children of poverty an academically challenging learning experience in elementary school. (1992, p. 43)

This chapter discusses the results of my research and my revisions to the Chapter II design, what has been accomplished, and why this communication methodology is important for educating children in upper elementary school classrooms. I also further discuss trustworthiness issues, limitations of this research and recommendations for further research.

Discussion and Conclusions

This discussion includes the options generator of the communication methodology (the Interrogational Function), the use of Yes/No Questions, Clarifications, and Diversions, the links between this research and earlier unitizing research, the meaning of tightening ecological units to form learning goals, and the empty niche this research was designed to fill. I

explain the value for upper elementary teachers and students in filling that empty niche with my communication methodology.

<u>What Has Been Accomplished?</u>

The options generator, the Interrogational Function, is well-suited to helping children create or explain their own learning goals. Linking Question Words and Pentad factors in the Interrogational Functions was a great insight in producing the communication methodology. By using the Pentad factors, I could focus on the child's situation as his or her motive for learning. Burke emphasizes "*(S)ituation* is but another word for *motives*" (1941, p. 20) in which "the *interrelationships* existing among all the factors" produce an experience (Nichols, 1963, p. 90). Nichols explains the meaning of Burke's linguistic motivation as "the language act as a whole *construed as a situation*," representing a "co-ordination or interrelationship of act, agent, agency, purpose, and scene" (1963, p. 90).

In this dissertation, the Pentad factors are focused on learning goal creation. The Act, what the author does in thought or deed, is the creation of the learning goal. The Agent is the child who creates the learning goal, including all contributing factors, such as aspects of being, history, personality, and behavior. The Scene is the situation, setting, or background out of which the learning goal grows, and extends far beyond the classroom. Purpose means the reason for the learning goal. Agency is the means by which the learning goal is created, the links the child makes between his or her chosen elements from Agent, Scene, and Purpose (see Figures 1 and 4). Focusing the Pentad factors on learning goal creation as Act helps clarify and specify analysis options while not inappropriately elementalizing a child's situation into mutually exclusive segments. It retains a view of overlapping aspects of

one whole. Using the question words allows the child to provide much varied information about his or her interest. Using the Pentad factors usually helps narrow the interest and allows for the development and articulation of the child's ecological unit by focusing on linkages among elements of the child's interest. Through use of the ecological unit, the student, or student-teacher team, generates the learning goal.

Each interview is unique to a particular child and his or her background and experience. Each interview develops as the student-teacher team utilizes different configurations of Interrogational Functions comprised of different selections of Question Words and Pentad factors. While all first interviews with children involve Interrogational Functions plus Yes/No Questions, Clarifications, and Diversions, some rely less than others on the last three communication transactions. The second interviews with Ed and Marisa (Ed-2 and Marisa-2) start when those students state their narrowly focused learning goals. Once they have their learning goals, they pay more attention to elements needed to explain the learning goals and seem to have less need for Clarifications and Diversions.

The interviews support earlier work by other researchers showing that children unitize in completing reading and math coursework (See, for example, Cunningham, Healy, Kanengiser, Chizzick, & Willitts, 1988; Ehri & Wilce, 1983; Healy & Drewnowski, 1983; Lamon, 1990, 1993; Wheatley, 1992). Each child involved in this dissertation configured his or her experience by ecologically unitizing: linking elements in relationship.

When tightening ecological units around learning goals, children invariably refer to themselves (Agents). They link aspects of at least one category of Agent (history, behavior, being, and personality) with at least one

other Pentad factor: Scene or Purpose. As in any learning experience involving diverse participants, the children bring varied levels of background preparation. Some children, like Summer (see Appendix H) seem to have an intuitive sense of ecological unitizing when talking about their interests. Some, for example Marisa (Appendix F), Summer (Appendix H), and Saul (Appendix I), take more responsibility for their consultations by contributing more Interrogational Functions and more complete responses, and by emphasizing what they want their teacher to understand about their learning. Two children, Bess andCarmen, loosened, rather than tightening, their ecological units around learning goals. In the communication methodology, loosening seems to indicate that the necessary linkages are not being made for the formation of a learning goal. Loosening leads away from ecological units, perhaps to unrelated goals, to no goals, to a focus on performance goals, or to lack of interest. Sometimes children simply need extra encouragement from their teacher to articulate the positions important to them.

As Chapter I of this dissertation shows, an empty niche has existed in learning goal research. As recently as 1992, Ames stated, "Establishing linkages between the environment, goals, and student motivational outcomes has been very important; determining how to create these goals in the classroom is a next step, albeit not an easy one." (p. 261) In recent research on learning goals, Carroll and Christenson (1995) asked students to set reading and writing goals and reported that students found it difficult to do so. Siu-Runyan (1994, p. 149) taught goal setting by asking students, "'What would you like to learn next in order to become a better reader or writer?'" She explains (p. 149-150), "I received very little response from the students. . . . After about a month of my asking this question over and over

again, students slowly began telling me what they wanted to learn next." Kay (1994) asked children, "If you could learn more about anything in the world, what would you choose?" All three of those research projects involved a general approach to helping children set learning goals. None established *how* to teach children to create learning goals. The researchers indicated they felt less productive than they wished in helping children set learning goals. In my communication methodology, children learn to use the who, what, when, where, why, and how questions; to model question-asking, to ask questions, and to share questions and answers with other children.

My communication methodology provides one way to fill the empty niche and teach children to create their own learning goals. This way of teaching children to create their learning goals involves several aspects. These aspects include a) establishing communicative relationships in the classroom which foster respect and recognition of the uniqueness of each person, b) attending to the interests of each student, c) consulting in cycles of Interrogational Functions and responses supported with three other types of communicative transactions, d) recognizing the students' participation in the leadership of the interviews, and e) guiding the children to engage in ecological unitizing and tighten their ecological units around their learning goals. The communication methodology was useful in my classroom for the purpose for which it was designed, tested, and revised. It could be useful also to other interested parties involved in the types of communicative relationships I described.

Another factor, besides "What do you want to learn next?" which might inhibit student-created learning goals is the long-standing pattern of questioning in schools, the teacher prompt or question, student response or

answer, and teacher evaluation (Cazden, 1988; Lemke, 1990). This pattern may interfere with the kind of collaborative discussion needed for a child to ecologically unitize and create learning goals (Dillon, 1982, 1984). Students who expect that perspective may just wait for the teacher to tell them "the answer." By starting with student interest, by using Interrogational Functions in collaboration with students, and by focusing attention on children as Agents, children may be encouraged to generate (Getzels, 1979) questions for which "the answer" doesn't reside with the teacher. Such answers reside with students' selves, experiences, and backgrounds.

This dissertation adds to the group of situated, historical approaches to qualitative research which address the effect of the investigator on process and data (see, for example, Kauffman, 1992; Lannamann, 1991). I have provided adequate information about my own assumptions and about my interactions and responses to children and to data to add support to that approach to research.

Why This Communication Methodology Is Important

Most importantly, this communication methodology *both* provides a mechanism for designing communication practices (methods, strategies, options) in elementary classrooms so students can create their own learning goals *and* exemplifies children creating learning goals in consultation with a teacher. The communication methodology demonstrates a strategic approach to creating learning goals in contrast to asking children, "What do you want to learn next?" and waiting a month while children struggle to answer (Carroll & Christenson, 1995; Siu-Runyan, 1994).

Also, very importantly, this communciation methodology has been designed for use, and tested in, a highly complex, unpredictable (Cochran-

Smith & Lytle, 1993), and context-dependent (Wilson & Wineburg, 1993) classroom. Fostering the communicative relationships featured in this dissertation, and utilizing the unpredictableness of teaching-learning allowed me to help children toward learning goals. Culturally and economically diverse boys and girls, fourth through sixth graders, Caucasian, African American, and children whose two parents have different racial backgrounds all created learning goals using the communication methodology.

Focusing on ecological unitizing means that the whole of a child's experience, background, and interests can be under consideration when creating learning goals. Child-centered coaching (Bransford & Vye, 1989) laced with wisdom and strategic consultations can enable children to produce learning goals. Focusing on children's whole backgrounds may encourage them to consider their own interests, to develop interests, to recognize that learning is satisfying, and to value their own uniquenesses.

Student-generated questions research has already shown that children find pleasure and well-being when generating their own questions. They become excited and actively engaged in their learning, prepare for future challenges, and develop awareness of their own learning and comprehension levels (Gall & Rhody, 1987; Wing, 1992). Students focused on learning goals, rather than performance goals, may believe their effort leads to success. They tend to work to develop new skills, understand their work, and achieve mastery based on self-referenced skills (Ames, 1992; Meece & Holt, 1993). This communication methodology provides a strategic approach to helping children motivate themselves to focus on and create learning goals. It offers a *how*. *How* can I, the teacher, help children learn to set their own learning goals? This communication methodology has potential for contributing to

both student satisfaction (Wing, 1992) and student academic achievement (Meece & Holt, 1993).

Trustworthiness of This Research

Four trustworthiness issues considered in this dissertation were credibility, transferability, dependability, and confirmability. (Lincoln & Guba, 1985) Developing credibility meant representing the students' constructions of their realities adequately by reconstructions *"credible to the constructors of the original multiple realities"* (p. 296, italics in original). Member checks (p. 314) with my students indicated that they accepted the reconstructions. During his interview, Danny emphasized and reemphasized his desire to learn how to fix electrical and mechanical things by "learning as I go." The day of the interview, he wanted to fix his remote control car. Saul's credibility check came about two and a half weeks after the interview. He added factual information to the transcription to explain a "ball" in baseball. Other than that, he found my reconstructions acceptable. Sue (manatee interview) was not available for a credibility check. She had emphasized her background knowledge throughout her interview. Her learning goal was a fact question designed to add to her knowledge.

Ed's credibility check happened in a small group discussion nearly a month after his interview. He accepted the learning goal I reconstructed from his interview and focused it on "whys or reasons" snakes live or die. Marisa also participated in the group credibility check almost a month after her interview and restated her learning goal as, "How do people keep stories in their head without forgetting." In context, this was very similar to, "The ability to get things on paper and not let it slip out of your head." Carmen's follow up credibility check came about six weeks after her interview. My

notes for the follow up state,

> (3-17-97: We read through the protocol together, with teacher reading and Carmen listening along and being given opportunities to respond.) Which would you prefer: Medical doctor, violin player, or flight attendant? (Carmen responds: Flight attendant.) How does this (protocol) sound? (Carmen: Ok) Is there anything you want me to change to be more what you want? (Carmen: No) I'll come some other time and talk more about flight attendant, ok? (Carmen: Ok) I'll come at a time when it's ok with you and your classroom teacher.

I was not able to get back to her to discuss her interest in being a flight attendant.

Bess moved and we could not do a credibility check. I could not investigate why she seemed to tighten her ecological unit, yet not produce a related learning goal. Summer's credibility check happened in the small group consultation with Ed and Marisa. The group discussed her learning goal, "How do constellations get the stars grouped together to form pictures?" Members suggested constellations were imagination, or "it just happens." Summer restated, "I don't know really. If it's imagination or if it just happens." She had not solved her learning goal yet. Rachel was in the group follow up, but we did not have time for a credibility check of her learning goal.

Ronell and I read through my reconstructions of his consultation, to which he responded, "That sounds perfect." I restated both Ed-2's and Marisa-2's science learning goals. They then explained their ecological units for the learning goals as I had reconstructed them. All these member checks indicate that the reconstructions are credible to the originators, the students, and they

are trustworthy in that respect.

Additional activities supporting credibility of the interviews were described on pages 60 to 62 of this dissertation. I triangulated sources (intermediate level children) by consulting not only students in my classroom, but also former students, and relatives. Prolonged engagement and persistent observation enhanced credibility, too, since I work with my students for hours a day over many months. The whole first quarter, nine weeks, was spent establishing the communicative relationships described in Chapter I before any interviews with this group of students. I had known former students even longer, and other children for years. Peer debriefing is another technique used to enhance credibility. Perspective developed during my talk on February 26, 1997, with my peer debriefer was discussed in the Analysis section.

Transferability, another trustworthiness criterion, requires rich, thick description, intentionally sampled for theoretical relevance to understand the processes, beliefs, and perceptions in a situation (Firestone, 1993, p. 17, 22; Lincoln & Guba, 1985, p. 316). Transferability inferences can be made when the original investigator supplies sufficient empirical evidence for another investigator to make judgments about contextual similarity (p. 297-298). Thick description in this dissertation includes descriptions of setting and subjects, explanations of data collection and analysis including interview transcriptions, journal entries recording ongoing considerations, and methodological notes for each interview. I have retained the complete sets of data, several cycles of data analysis, and creative and methodological notes. Samples are included in this dissertation. Appendices E through I present one set of notes and methodological appendices, one initial interview

paragraph, and three complete interviews. All these add to the rich description of the data and products excerpted in the Chapter III text and figures. Complications in analysis were explained in Chapter II.

The audit trail (Halpern, cited in Lincoln & Guba, 1985, p. 319-320) includes a year's supply of raw data, data reduction and sets of analysis attempts, complete data analyses of interviews from different perspectives, multiple attempts to diagram the emerging communication methodology, descriptions of my developing ideas and understandings, several versions of interview introductions to children, and notes of consultations with my advisor and peer debriefer. An audit of the inquiry process could support the dependability of the study, taking into account both instability factors and design-induced change (p. 299). An audit of product could support confirmability of the data. Dependability and confirmability are the last two of Lincoln and Guba's four trustworthiness criteria (p. 318).

My detailed explanations of all these processes and products support the credibility, transferability, dependability, and confirmability, all together the trustworthiness, of this dissertation.

Limitations

Several limitations of this research are discussed in this section. Limitations include 1) providing a communication methodology in Chapter II before consultating with students, 2) collapsing the design and test of the communication methodology into one set of data, 3) the question of invariant relationships which is unanswered in the communciation methodology to date, 4) the puzzle of how the child creates agency when ecological unitizing, 5) the small group of participants involved with one researcher, and 6) the requirement that children and adults using the

communication methodology share particular perspectives of communicative relationships.

One limitation of this research is the relationship between the design of the communication methodology in Chapter II, and the communication methodology presented in Chapter III as a result of data gathering and analysis. This dissertation was planned as a design project. An outcome, a communication methodology, was designed. This dissertation was not planned as a test of hypotheses, nor as a search for answers to research questions. No hypotheses nor research questions were provided. I originally expected to design the communication methodology after gathering and analyzing data showing child-created learning goals. The next step would have been classroom testing of the newly designed communication methodology, which would have, at that point, been based on consultations with children who had created their own learning goals. However, I was not able to carry the point of the crucial difference between dissertations as tests of hypotheses, as searches for answers to research questions, and as outcomes to be designed. Thus, Chapter II provided a tentative communication methodology, written *before* I had gathered the essential cases of learning goal creation.

I expected, from my critical survey of pertinent literature, and from my earlier consultations with upper elementary age children, that question words (who, what, when, where, why, and how) built into Interrogational Functions would be essential to the design of my communication methodology. Also, I had planned to focus the communication methodology on ecological unitizing. This meant that the design was to focus on unitizing which included not only elements of children's interests, but also the relationships

among the elements of interest important to their learning goals. I selected Burke's Pentad as a way of focusing on ecological unitizing. Burke's attention to situation, to "the language act as a whole *construed as a situation*" (Nichols, 1963, p. 90), and to the interrelationships among the Pentad factors seemed congruent with the ecological unitizing featured in this dissertation. With those insights and starting points, I would have preferred to move directly to procedures, including data gathering and analysis, for designing my communication methodology. However, as the Chapter II section, Generating Learning Goals, states, a tentative communication methodology was produced before data gathering began.

By treating the tentative communication methodology, produced before data gathering, as a type of research question to be answered, I collapsed the design and test procedures, originally to have involved two sets of data, into one set. The restrictions imposed by the communication methodology of Chapter II were only overcome by an additional year of puzzling over the research design, by heavy reliance on the constant comparative method (Glaser, 1967) of data analysis, and by rich collaboration with some of the children who participated in this research. Two sets of data could have enhanced the trustworthiness of this research. Testing of this redesigned communication methodology with other students to evaluate the effectiveness of the design is an appropriate next step.

Several inadequacies of the Chapter II communication methodology were revealed in consultation with students. The originally planned generator, the *Make the Other Present* Map and Interrogational Function (IF) Loop, recognized a relationship between the Pentad factors and Interrogational Functions. That recognition proved useful. I suggested these

two aspects might be linked by children's invention of elements and relationships on their ways to learning goals. In generating learning goals with students, it was more appropriate to think of the Pentad factors and question words as both parts of Interrogational Functions. This choice was explained in the Analysis section of Chapter II.

Another difference between the communication methodologies of Chapter II and Chapter III was the addition of Yes/No Questions, Clarifications, and Diversions. Consulting with children led to the realization that the student-teacher team clarified information and tightened ecological units around learning goals (Yes/No Questions), clarified the interview process (Clarifications), and provided opportunities for each to speak for his or her own chosen options, even when those options might appear off track initially (Diversions). The version of the communication methodology grounded in the consultation data provides ways to generate learning goals through Interrogational Functions, to clarify the ecological unitizing done by children, and to recognize the partnership orientations of participants.

The question of invariant relationships in the communication methodology is yet to be answered. The communication methodology described in Figure 8 shows the cycles of Interrogational Functions, Yes/No Questions, Clarifications, Diversions and responses, and emphasizes the underlying ecological unitizing done by the child. I have not yet adequately explained the linkages that invariably occur among these cycles when using the communication methodology to produce learning goals. Do children invariably make certain relationships between Question words, Pentad factors, Yes/No Questions, Clarifications, Diversions? Do children invariably

take specifiable steps to tighten ecological units? Do children somehow invariably link elements in relationship to their knowledge, background, and experience? In relation to teacher questions? In relation to the communicative relationships they experience? There are many questions regarding invariant relationships yet to be explained which could strengthen the usefulness of the communication methodology. Recognizing invariant relationships might help the student-teacher team a) know when they are finished, b) know what is missing, and c) know if all participants are collaboratively involved.

The communication methodology presented in Chapter III emphasizes children's agency in tightening their ecological units around learning goals. Examples of several children's linkages are given, yet the specification of how those linkages are made awaits further research. Lacking information about how linkages are made limits thoroughness of the communication methodology as designed.

This study was conducted by one teacher with a small group of fourth through sixth graders from a clearly described communication perspective. Sufficient description is provided and more extensive data and analysis information are available to allow a researcher from another situation to make transferability judgments. Providing adequate information for interested parties to make transferability judgments strengthens the trustworthiness of the research (Lincoln & Guba, 1985). Usefulness to other teachers and students may only be discovered as the communication methodology is tested and then used in various settings. Each student-teacher relationship involves a unique communicative relationship. How those relationships look has not been specified.

This communication methodology focused on ecological unitizing depends on teachers and students having or being willing to participate in the kinds of communicative relationships detailed at the end of Chapter I. Viewing the structure of these communicative relationships as *both* socially constructed *and* dependent on teachers' and students' physical biological structures (Maturana & Varela, 1987) helps me recognize three key aspects of these relationships: the cognitive autonomy of teacher and students, their reflexive communication, and their moral responsibility in intervening in, and creating, their lived social realities (Krippendorff, 1993). Communicative relationships in the classroom *can* be based on Buber's dialogic perspective of *making the other present* (Friedman, 1976), Foss and Griffin's (1995) invitational rhetoric which fosters understanding and insight, and Maturana and Varela's (1970, 1987) biological perspective which recognizes that changes within our students are triggered by what they select from their social environment in the classroom. Changes happen as individuals are involved in the coupled relationships of social life, coordinated in language. I have not produced a communication methodology which can implemented in any classroom regardless of the communicative relationships existing there. This communication methodology can be useful and may be limited to use with classrooms in which teachers have had some education in communication and interpersonal relationships.

Recommendations

My communication methodology has just completed the initial design/test/redesign stage. A necessary next step in evaluating its usefulness involves testing the communication methodology presented in the Results chapter with different students. Further study could help establish the

trustworthiness of the communication methodology.

This communication methodology focused on ecological unitizing attends to the elements of children's learning goals and the relationships, or links, among the elements. The varied links children make are child- and situation-specific. Marisa-2 articulates her links in the sentence, "I fell and got a really bad bruise on my leg, and we were talking about bones and muscles, and it popped into my head." She links a past science report with a present science report, two elements of Scene, with a past bruise with a present bruise, two elements of her history, to produce a learning goal. Saul links his personal experience as a baseball player, with his knowledge of and interest in the positions of catcher and pitcher, and with his personal limitations as a player, to produce his learning goal. Sue, though, draws on personal experience in the form of facts acquired through TV shows and books. Once she has ecologically unitized by revealing her current knowledge, she shares the knowledge gap she wants to plug by asking, "What do manatee babies eat?"

Each child seems to engage differently in ecological unitizing, yet there are similarities. All children focus on their background and the background scene. Additional research could be conducted concerning *how* the children choose and link the elements of their ecological units. The process of making the links could be more fully explained. I think understanding the linkages is extremely important to further work on this communication methodology focused on ecological unitizing used to teach children to create their own learning goals. Understanding the linkages could also help me understand what was missing from Bess's and Carmen's ecological units and why they did not seem to produce learning goals.

A search for invariant relationships the children or student-teacher teams make is also a crucial next step. What links does a child invariably make among elements of interest? Among Pentad factors? Among questions? In agency? Many invariant relationship questions are yet to be answered.

It is also important to create awareness of the many incidents of child-initiated ecological unitizing and learning goal creation in the classroom. Using this communication methodology in other classroom settings, with other groups of students, and including other teacher researchers could help establish transferability. Analysis of the audit trails could likewise enhance understanding of the trustworthiness of the communication methodology.

Conclusion

This dissertation fills an empty niche in learning goal research. It provides a mechanism for designing communication practices (methods, strategies, options) in elementary classrooms so students can create their own learning goals, and exemplifies children's creation of learning goals in consultation with a teacher. The trustworthiness of the research has been explained, including credibility, transferability, dependability, and confirmability of data. More testing, with a variety of students and teachers, is an appropriate next step.

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Appendix A

An Example of Ecological Unitizing

These data derive from an earlier study of elementary teachers' perspectives on their successful communicative relationships with students (Menousek, 1994). Appendix A is included to illustrate the construct, *ecological unitizing*. The upper elementary teacher quoted here, "Mary," ecologically unitizes to help "Elise" succeed in spelling tests. This appendix is not an example of a student ecologically unitizing to generate a learning goal.

I usually let the kids tell me; they will tell you if you just wait. They will tell you; they will give you some sort of message, some sort of signal. Some times it's just a look. You have to be watching. It's a look. Elise does it to me all the time. I know what she's saying to me. I can *see* her across the room. I'm not a very visual person, but we have this quiet communication. I know when she's stuck on a problem, and I better get over there fast, because if I *don't* she's gonna stop, and she's gonna quit, and she's gonna get frustrated. And so I watch her, and in fact I give a spelling test in the room, and she only has ten of the twenty words, and we talk to each other the whole time, by sight only. She'll look at me when she's done. She'll look at me when she's ready. If I try to move before she's ready, she'll look at me and she'll change her eye movement. That means I'm going too fast, and slow down, Mary. She'll smile at me, and nod, and blink her eyes, and that means, "I'm ok, go to the next word." And, it's her style, it's her way, it's not mine. If I force mine on her, I've failed with her. I've completely chosen a path for her that isn't *her*. And it's not comfortable for her. So, I have to know what she needs, from me.

And so, from child to child, it's totally forgetting self, and saying, "This is not how *I* would talk, cuz I'm very verbal. This is not my choice. But Elise wants to talk to me by sight. That's how I talk to her. And, some of the things I do *aren't* comfortable for me, and some of the things I don't always understand why we're doing this, but if it's their comfort zone, and it's their chosen way, then I give them what they need, and what they want, and what will help them learn. (Menousek, 1994, p. 14-15, pseudonyms used)

Appendix B

Coded Example of Ecological Unitizing

Appendix B incorporates into the Appendix A transcription the linked nature of (relationships among) nine elements which seem important to the teacher in ecologically unitizing to help the child toward success in spelling tests.

PERSPECTIVE SHARING I usually let the kids tell me; they will tell you if you just wait. They will tell you; they will give you some sort of message, some sort of signal. Some times it's just a look. You have to be watching. It's a look. **INFERENCE** Elise does it to me all the time. I know what she's saying to me. **OBSERVATION** I can *see* her across the room. **PERSPECTIVE SHARING** I'm not a very visual person, but we have this quiet communication. **INFERENCE** I know when she's stuck on a problem, and **PERSPECTIVE TAKING** I better get over there fast, because if I *don't* she's gonna stop, and she's gonna quit, and she's gonna get frustrated. **PERSPECTIVE SHARING** And so I watch her, and **KNOWLEDGE OF STUDENT** in fact I give a spelling test in the room, and she only has ten of the twenty words, and **COMMUNICATIVE STRATEGY** we talk to each other the whole time, by sight only. **STUDENT COMMUNICATING** She'll look at me when she's done. She'll look at me when she's ready. If I try to move before she's ready, she'll look at me and she'll change her eye movement. **INFERENCE** That means I'm going too fast, and slow down, Mary. **STUDENT COMMUNICATING** She'll smile at me, and nod, and blink her eyes, and **INFERENCE** that means, "I'm ok, go to the next word." **PERSPECTIVE TAKING** And, it's her style, it's her way, it's

not mine.   If I force mine on her, I've failed with her.   I've completely chosen a path for her that isn't *her*.   And it's not comfortable for her. **PERSPECTIVE SHARING** So, I have to know what she needs, from me. **FLEXIBLE DESCRIPTIONS** And so, from child to child, it's **PERSPECTIVE SHARING** totally forgetting self, and saying, "This is not how *I* would talk, cuz I'm very verbal. **STUDENT AUTONOMY** This is not my choice.   But Elise wants to talk to me by sight." **PERSPECTIVE SHARING** That's how I talk to her.   And, some of the things I do *aren't* comfortable for me, and some of the things I don't always understand why we're doing this, but if it's their comfort zone, and it's their chosen way, then I give them what they need, and what they want, and what will help them learn. (see Menousek, 1994, p. 14-15)

Appendix C

Polya's (1973) Heuristic Problem-Solving Stages

Stage 1: Understand the Problem.

What is the unknown?

What are the data?

What is the condition?

Stage 2: Devising a Plan.

Find the connection between the data and the unknown. You may be obliged to consider auxiliary problems if an immediate connection cannot be found. You should obtain eventually a *plan* of the solution.

Have you seen it before?

Do you know a related problem?

Stage 3: Carrying Out the Plan.

Stage 4: Looking Back.

Examine the solution obtained.

Polya's Stage 1, Understanding the Problem, seems akin to capturing the learning moment. If I can recognize a learning goal lurking behind a student's expressed interest, I can help the student pursue that goal. Stage 2, Devising a Plan, leads me to guide a child to a completed ecological unit surrounding his or her stated interest. Stage 3, Carrying out the Plan, is used as a parallel for achieving a learning goal. Stage 4, Looking Back, may provide opportunity to understand the development of a particular goal.

Text of Opt-Out Letter to Parents of Student Participants

(Sent out on school letterhead.)

August 28, 1996

Dear Parent/Guardian:

Children find lots of pleasure in learning what interests them most. For example, one student from a recent class loves math problem solving. Another wants to be a writer. Another delights in finding opportunities to make people laugh. I am working on a project this year to help children create their own satisfying learning goals.

As your child and I get acquainted, he or she may express curiosity about some particular interests. When that happens, I will try to give your child a little extra attention individually, in a group, or in class discussions. We teach who, what, when, where, why, and how questions in the fifth grade curriculum. I hope to work with your child to develop some questions and answers based on his or her interests in order to create a learning goal satisfying and unique to your child.

A main purpose of this letter is to let you know that I am finishing my PhD, and this project is part of my PhD dissertation work. I will select a few anonymous examples from the project for discussion in my dissertation.

Please phone me at school, 344-7226, if you would like to discuss my project. If I am not available, a secretary can take your message and I will return your call. I am happy to give you my home phone number if that would be more convenient for you. If you would like your child involved in this project, you do not need to respond, since our learning goals work fits within the fifth grade curriculum. If you prefer your child not be consulted in

this project, please send me a note to let me know. I will not be grading the children's work on learning goals, so there will be no negative effect on any child's grades.

Thank you.

Dorothy Menousek

Fifth grade teacher

cc: Principal (name)

        Assistant Principal (name)

        (name), Coordinator of Research

Appendix E

Notes and Methodological Appendix for "Ed"

Written 1-22-97, Typed on 1-23-97

Notes

. . .

Methodological Appendix for Today's Interview

I realized as I was doing the interviews that I should be more focused on the questions that I need to ask, related to the pentad elements. I realize also that I needed to introduce my purpose to kids, so wrote an introductory paragraph to start today's interview with. (paragraph follows) I also realize that I need to consider the child a partner, albeit maybe an unequal partner in dialogue, who is my teammate in getting the learning goal accomplished. I fear I was objectifying the children!

Also, I need to specify to them that I'm interested in what they want to learn. I looked back and started data analysis and realized that I was more clear when I first started my interviews, and not so clear now. That shows the importance of moving back and forth between data gathering and data analysis.

I realize I need to keep the LOOP in focus. I also realize that the 5 pentad elements are not so clear to me--the meanings of them and the overlaps, that is.

It's a relief to have begun the data analysis even though I don't know what I"m doing, I had to start somewhere and I did. Yes! and yippee! I *will* finish this!

Guilty, Guilty, I realize I've been withholding straight info from kids on what I'm doing with them in this project in order, I think, to assure

myself that I can go through the process without kids preempting by stating a learning goal first off. Perhaps if they do, I could seek out what their ecological unit is by asking questions after a goal is stated. What could I learn from that?

Introductory Paragraph for Consultations

I am interested in talking with you about what you want to learn. I will probably ask some questions and write lots of notes so I can think about what you say later. Your talking with me helps me figure out some things teachers need to know about what different kids want to learn. Thank you for helping me with this project.

Who

What

When

Where

Why

How

Act: What the actor does or accomplishes in thought or deed.

Agent: Performs the act. All aspects of his or her being are included.

Agency: Means or instrument by which the act is performed.

Scene: Situation, setting, or background out of which the act grows.

Purpose: Reason for the act, rhetorical goal, effect or result.

Appendix F

"Marisa"

A student of mine in fifth grade

Notes written 1-24-97, typed 1-27-97

Teacher: I am interested in talking with you about what you want to learn. I will probably ask some questions and write lots of notes so I can think about what you say later. Your talking with me helps me figure out some things teachers need to know about what different kids want to learn. Thank you for helping me with this project. You said reading *(book title)* made you want to be a writer. Tell me about that.

Marisa: Well, she talked about her life growing up in *(book title)* and I've seen the movie also. It makes me wanna write because she expresses her feeling so much in the book and it makes me wanna do that, too. This summer I wrote in my notebook every day what I did and some day I wanna turn that into a book and she's just a wonderful person, I think.

T: And how did you happen to start making a journal this summer before you read *(book title)*?

M: Mom and Dad told me a lot about *(book title)* this summer, and I have a volume with three books in a set and Mom said it's one of the greatest books. And I got a volume about her life. And for Christmas, *(book title)*, and I want to be famous, and will read *(book title)*

T: So, you want to be famous?

M: Yep, I wanna grow up to be rich so I can pay taxes and get other people to be writers, too, and I wanna be famous because no one pays attention to me sometimes, and I was on TV. At the library a little program was being taped and I got on it two times and my brother once. And at (place) we sat

in a group and they had us yell out what we liked. My brother liked sharks and I liked penguins. And at the bar, kids allowed, they had shirley temples for me and I got on.

T: How?

M: They were filming the game and I just kinda reached up and put my hand in and got number one up.

T: Think, now about what it is you really want, to be famous, or to be a writer.

M: To be a writer so I can express my feelings and tell people it's ok to do this.

T: So, far it seems like your folks influenced you.

M: Yeah, my dad--I kept saying I wanted to read novels and Dad said I had to read (book title) and I was coming across it in the bookshelves there (at school) and said I wanna read it.

T: What do you and what have you learned already about expressing your feelings in writing?

M: It's ok to tell people what you feel and express it in writing and not hold it in and it's ok to do what you want and do many things.

T: What have you written that expresses your feelings?

M: I've written short stories about (story title) and I've made it up like it's my feelings. And I saw a show called Mommy Mart. The kids think their mommies are mean and there's a building and they go and one person smokes and they take their own mom.

T: Own?

M: Yeah, because they think anyone else is too crazy for 'em.

T: So, you want to write to express your feelings. What would you want to learn about writing to do that?

M: The ability to get things on paper and not let it slip out of your head. Like *(character)* in *(book title)* has ten stories in her head that she could write one day.

T: Can you tell a little more about what you mean.

M: See, when I try to write stories, it pops into my head and I write about half of it and I can't remember what comes next and I try to make it up but it doesn't come to me.

T: You think that what popped into your head was more than you remember and

M: Yep, my Mom and Dad say I get wonderful ideas but I can't carry 'em out.

T: When do you get these ideas?

M: Well, when I'm sitting down watching TV or playing Monopoly or something, and sometimes when I'm just sitting there doing nothing it pops up and I say I gotta write this down.

T: Do you write it down then?

M: Well, half of it, and it just leaves my mind and it's like, oh, man, and oh, like I remember, I made a book and I can't remember what it's called, oh, it's called *(name of her book)*, she's sitting on a couch watching TV and she goes to the store and gets back and gets her mail and it's a love note, and with love birds, and she goes out on a date, and gets married and that's the end. (She talks more about another book she's written.) *(name of another book she's written, book #2)* about air planes and we made up funny songs and ate popsicles and went to sleep. And that's the end and on the cover two of us on the cover behind bushes.

T: (I got confused and she explained that in the above story part of it was inside the book and part was happening over at her friend's where they

sang songs and ate popsicles and went to sleep.)

M: It's all in the *(name of book)* and on the back we put *(the two girls'*
personal trademark).

T: Tell me more about the *(book #2)* book.

M: Me and *(friend)* were having fun together and I wrote about what we did.
We have a great big ball and live close to the church and we go over and
bounce on it.

T: So, if I understand, what you want to learn to do is to get your whole story
written before you forget.

M: Yeah, and I have to write really really fast to get to the middle and I leave
out important words sometimes to get to the middle.

T: Do you think I have a good idea of what your interest is?

M: Yeah.

Appendix G

"Ronell"

A student of mine in fifth grade last year, now in our school in sixth

Notes written 2-25-97, typed 2-27-97

Followup checking credibility of protocol to Ronell, 3-12-97

Teacher: I am asking you to help me with a project I am working on right now. I am trying to find out how kids decide what they want to learn next. I need to talk with kids I know in order to get some help figuring that out. I will probably ask some questions and write lots of notes so I can think about what we discuss later. I thought I would ask to talk with you because you have talked about some things you are interested in. Juggling, football, science, about the human body. I may ask who, what, when, where, why, and how questions. Do you have any questions for me now? I may ask questions about your interest in doing something, about a person or animal who does something, about how something is done, about the setting or background of your interest, or about whys or reasons concerning your interest. (The part after the interests were listed was paraphrased.)

Ronell: Ok. . . .

Appendix H

"Summer"

A student of mine in fifth grade

Notes written 2-5-97, typed 2-5-97

Teacher: I am asking you to help me with a project I am working on right now. I am trying to find out how kids decide what they want to learn next. I need to talk with kids I know in order to get some help figuring that out. I will probably ask some questions and write lots of notes so I can think about what we discuss later. I thought I would ask to talk with you because you have talked about some things you are interested in. Science. (She nods.) I may ask who, what, when, where, why, and how questions. (She groans.) Do you have any questions for me now?

Summer: Science.

T: Is it ok if we talk about science?

S: Um hum.

T: One day you said you were really interested in science. How did that happen?

S: Planetarium. Last year I never did science. I like the stars and all those things. I like learning about science.

T: What is the most interesting thing about science right now?

S: I think, constellations, a whole bunch of stars making pictures.

T: Had you learned about constellations before science class?

S: Haven't.

T: What else can you tell me that interested you about constellations?

S: How stars group together to form constellations. Some stars are bright, some small.

T: Is there anyone else who has helped you be interested in constellations?

S: You.

T: Let's try a "where." Where did you get interested in constellations?

S: School, and I liked the planetarium.

T: What did you like most about the planetarium?

S: I liked how they showed all the constellations and how they formed.

T: Let's see. We did some "what," "where," and "who." Can you think of any other questions that would help you explain?

S: No.

T: How about, "When did you get interested in constellations?"

S: This grade. (She seems puzzled.)

T: Sometimes I ask the same question again because I'm trying to puzzle this out.

S: Ok.

T: If you had a chance to learn more about constellations, what would you be interested in learning?

S: Like, how did the constellations get so many stars together.

T: Can you explain a little more what you mean?

S: Like how constellations get all the stars grouped together to show pictures and show direction.

T: So, you're interested in how constellations get all the stars grouped together to show pictures and to show directions. Can you tell me any more about that?

S: Uh, like explain it?

T: Yeah.

S: Like, how the constellations get all the stars together and form one big

picture and show directions to help people.

T: It seems like if you had a chance to study more about constellations you'd want to know how the stars got grouped to show pictures. And tell me about the direction. What do you mean?

S: Like on the Big Dipper and Little Dipper, it shows Polaris and if you need directions you could always find the North Star.

T: This is neat. Thank you.

S: Um hum.

T: Do you remember anything in the science book about how stars got grouped together?

S: Uh uh.

T: How would you go about finding out how stars got grouped together?

S: Look in all libraries for books, and in my science book, and in a computer.

T: Also, Neale Woods, do you know Neale Woods?

S: Uh uh.

T: Neale Woods is a nature center north of Omaha, and it has a little observatory

S: Oh.

T: and they have star shows and teach about astronomy and stars.

S: (Nods.)

T: Can you think of anything else you could tell me that would help me understand your interest?

S: Like other things I'm interested in?

T: About this question now.

S: No.

T: So, do you have another interest you're interested in?

S: I'm interested in how some stars are bright and some stars are not.

T: (I repeat this back.) Can you tell me a little more about that?

S: Sometimes when you look up in the sky some stars are real bright and some are dull and you can't see 'em real well.

T: Do you look in the sky?

S: Yeah.

T: When did you start that?

S: I wanted a telescope last year and got one and started looking at stars in the sky right when I got it.

T: Like last year when?

S: At Christmas.

T: Like last month?

S: No, like in 1995.

T: How did you happen to want a telescope last year?

S: Once in a while I like to look at stars, but I wasn't very interested in science 'cause I didn't have science and there were a lot of trees in my way and so I wanted a telescope and got one.

T: Can you see over the trees? How does that work?

S: My telescope is bendable so I can put it where I want it and tip it up more and then I can look at the sky.

T: What have you seen in the sky that you were glad to see?

S: I seen the moon and I seen bright stars and dull stars and big and little stars.

T: (I prompt and repeat.) Who do you share your star watching with?

S: Sometimes I let Mom and Dad come around and show 'em what I see and by myself.

T: We have a little time left. Is it ok to keep talking?

S: Um hum.

T: Have you seen constellations with your telescope?

S: I didn't know there really were constellations in 1995 until this year.

T: Have you looked for constellations with your telescope this year?

S: Um hum.

T: Which ones have you found?

S: Little Dipper and Big Dipper, and um, one looked like Cepheus, but I dunno. They're kinda crooked.

T: Yeah. So, let me try this. You got interested in stars by class, science, the planetarium, and your telescope, but, uh, but you got your telescope before class. And can you tell again how you happened to ask for a telescope?

S: I watch show, lots of exploring shows, and

(Interruption by another student)

S: people were happy they saw stuff and that made me interested.

T: (Repeats Summer's comment above.) Shows on TV. So you have teacher, science class, planetarium, shows on TV, and telescope. Anything else that helped you get interested?

S: Not really.

T: The "when."

S: This year. 1995.

T: When do you watch the shows?

S: A lot of times in winter, because I played during summer and I looked up at the stars then, too.

T: So, we have "who," "when," "what," "how" the stars make pictures and bright and dim stars.

S: (?)

T: Who, What, When, Where

(Interruption by another student.)

S: At my house, and outside, and here (at school).

T: And (?) how.

S: Um, from you, and my telescope, and the shows

T: Oh, ok.

A: And "why," Well, I think science is neat because all these stars are different from other stars and they can get bunched up into a constellation.

T: Do you think I understand your interest so far?

S: Um, yeah.

T: Do you think you've explained all the parts you need to explain to help me understand?

S: One more "how." On the Fourth of July, when we shoot off fireworks, we shoot off a lot and I look up in the sky and see a whole bunch of stars.

T: Ok, anything else right now?

S: Um, no.

T: Terrific, thanks. I'll type this up and share to see if I got it right.

S: It was fun.

Appendix I

"Saul"

A student of mine in fifth grade last year, now at our school in sixth.

Notes written 10-16-96, typed 11-4-96

Followup checking credibility of protocol to Saul, 3-17-97

Teacher: You're interested in so many things. Making people laugh.

"Saul": Different kinds of animals, baseball, football, basketball, almost any sport, roller blading, I like to ride bikes, going down to (name) Park, having swing competitions,

T: What do you mean, "swing competitions?"

S: Seeing who can go farther. I like reading,social studies, spelling, science, P.E. I like being in chorus, I like safety patrol.

T: You're in safety patrol?

S: Uhuh. Let's see--uh huh? I'm interested in, uh, I like to study about animals, I like to plan supernintendo, uh,

T: Wow.

S: Sometimes If I'm real bored, I like to study about people--history back then, uh, about my favorite person in baseball is Willie May Hays 'cause he beat Babe Ruth baseball hitting and best base stealer. I like studying about baseball itself. I like studying about people in wars, what wars I haven't studied yet, I like TV. (Both laugh.) I like playing baseball in (place name) I like--Mom does shopping and gets pomegranets. They're like little koolaid pockets. I like climbing trees, doing flips, acrobatics, I like running, lifting weights. I like art. I like playing with all three of my little brothers. My stepmom had another little baby, his name's (name). I like to play kick ball, I like to swing on the triangle monkey bars out there

(indicates the school playground). Let's see.

T: That's a lot. I'd like to talk about one of these. Which one would you like to talk about?

S: Probably baseball.

T: Tell me again what you're interested in in baseball.

S: I like studying WIllie May Hays. He's one of my idols. He's beat Babe Ruth run hitting. Lou Gehrig. Cal Ripkin beat Lou Gehrig playing so many games. He has the record now. Babe Ruth. Frank Thomas. He plays on White Sox, my favorite team. He got injured, awhile got injured. He couldn't play for a while. Now he's back better. Everyone calls him the big hurt cause he's got lots of home runs. He's a real good first baseman. And

T: OK. How did you get interested in baseball?

S: Well, my—when I was a little kid, I was flipping channels and I couldn't find anything and started watching baseball and my grandma asked me if I wanted to be in baseball, and I said yes.

T: So, you play baseball now.

S: Yeah. I've been two years in baseball minors and one year in majors. First year, 4th place (gives sponsor). Second year, 2nd. Third year, 3rd. Every year I play baseball, I'm #7. That's my lucky number.

T: How'd that get to be your lucky number?

S: First year he gave it to me, I put it on, and played good and played that number ever since.

T: It was your grandma and TV and playing all together that interested you. What about baseball are you interested in learning more about now?

S: Pitch better. I'm good, just not good enough to be pitcher. I like to learn about first base because I've never played first base.

T: What positions do you play?

SL Catcher is my favorite position. Second base is my second favorite. Center is my third favorite. I've played all those. I've made good plays at catcher. Center field one day when I was playing—two outs. Someone hit a foul ball almost all the way down, and the third baseman wasn't going for it. I dove for it and opened my glove, and opened my eyes, and saw it there. In center field someone hit it between right and second base. The second baseman couldn't get it. Right fielder wasn't going for it, so I ran and slid and caught it.

T: You're so good at so many positions, what makes you want to try pitcher and first base?

S: I'm short, and a lot of people say you need to be tall to be first base, so you can stretch. And pitcher, I'm used to standing up and throwing up. I'm not used to throwing down. So

T: So, um, the pitcher has to throw downward.

S: Downward—between the shoulders and knees. But I'm used to throwing right here (indicates neck high)

T: Sounds like pitcher and first base are challenges.

S: Pitcher is difficult. I need to grow taller to play first base.

T: If I would ask (how?) to learn—pitcher and first base?

S: Yeah, pretty much.

T: Tell me a little more about what about playing pitcher you'd like.

S: When I grow up, I want to be catcher. The most difficult is when they're stealing. I have to get up and throw off my mask to see, and throw to second

T: Stealing to second?

S: I get most people out on third.

T: How does wanting to be a pro catcher make you want to learn pitcher?

S: I know how to catch, but I need to learn how to throw downward.

T: So, it's learning to throw downward

S: Do you have to use all that paper?

T: No, I brought it cause I had it. My (person) did this too, and I used lots of paper there, too. So, you'd like to learn what about pitching?

S: Pitching, throwing downward instead of upward. I'd like to put speed in it. But coach says just throw and sometimes it'll go right by itself.

T: Does a pitcher always throw downward?

S: Yeah, if they throw too high, the catcher has to get up to get it and it looks like a ball. (3-17-97: A ball is not a good pitch. It's not a strike, and if they get four of them, they get a free base.)

T: So, the way the pitcher throws makes the catcher behave a certain way.

S: Yeah, pretty much. So, it depends on the catcher. Makes the catcher look how the ball went.

T: Explain.

S: Say I throw waist level, and the catcher puts up his hand to catch it. The catcher puts his glove up or stands up and makes it look like a ball.

T: So, the way the catcher behaves makes the ball look like a strike or ball?

S: It's up to the pitcher to throw it right there (indicates waist) to make it look like a strike, but if the catcher has to raise his hand, it might look like a ball. It depends on the pitcher who throws it.

T: Depends on the pitcher. I'm still asking about what you want to learn.

S: Throwing downward and making it look like a strike instead of a ball.

T: Humh. And this is important to you *because*

S: It's important to me because I don't want to walk a whole bunch of people and let them score a whole bunch of points.

T: Now, I think I have my question. If you want to be catcher, why is pitching the thing you want to learn about?

S: I like being catcher, but It's getting kind of old, and I want to learn a whole bunch of positions I haven't played yet.

T: How will you learn this?

S: Practice, help.

T: Who will help you?

S: People I know, friends, my mom, "Matt." maybe my dad, and just playing a lot of baseball.

T: Do you ever read about baseball?

S: That usually depends on how bored I am.

T: Just say it one more time. You want to learn how to pitch the ball down, so it looks like a strike.

S: Yeah.

T: Got it. (3-17-97: We read through most of this protocol with comments as Saul felt appropriate.) 3-17-97 Does this souind pretty accurate so it's like what you want to say? (Saul nods.) Can you think of anything additioinal to help me? (Saul replies: "No, not really.)

Vita

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