READING HORIZONS
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Kalamazoo Michigan 49008

READING HORIZONS has been published since 1960, on the campus of Western Michigan University in Kalamazoo Michigan. As a journal devoted to teaching reading at all levels it seeks to bring together, through articles and reports of research findings, those concerned and interested professionals working in the ever widening horizons of reading and related areas of language. READING HORIZONS (ISSN 0034-0502) is published by the College of Education at Western Michigan University. Periodicals postage is paid at Kalamazoo. Postmaster: Send address changes to READING HORIZONS, WMU, Kalamazoo MI 49008.

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Individual yearly subscriptions are $20.00, $25.00 for institutions (in Canada, add $5.00 per year – $10.00 per overseas shipment). Make checks payable to READING HORIZONS. The final issue in each volume contains an Article and Author Index. Rates are determined by costs and subject to change.

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Dear Readers,

The articles in this themed issue of *Reading Horizons* address reading and writing across the curriculum. Reading and writing across the school curriculum have gained attention in content instruction since the 1970s. With the 1970s shift from a mechanical behaviorist approach towards reading and writing to a cognitive process of reading and writing as thinking and ways of knowing, classroom teachers have been striving to facilitate content-area subjects for their students through reading and writing.

Students have always been challenged in their reading and writing about content-area subjects to greater extents than in their reading and writing of fiction texts. The expository reading required in geography, science, mathematics, history, and health involves text structure, sentence complexities, and specialized content vocabulary daunting to students who typically have had far more experience with narrative reading. Moreover, the prospect of writing in content area subjects is even more challenging for students, as well as teachers, because writing has limited purposes in far too many classrooms today. However, there are those teachers who carefully guide their students through the reading of expository texts using the text as a model for their students' writing. These teachers present, in the best possible way, the integration of reading and writing in content.

I hope you find the articles in this themed issue of *Reading Horizons* to both challenge and invite you to integrate reading and writing across the curriculum as ways of knowing and thinking about content.

Karen F. Thomas
Guest Editor
Language and Mathematics: A Natural Connection for Achieving Literacy

Eula Ewing Monroe

Time for a change

Regie Routman, in Transitions (1988), stated that "our schools are turning out functional literates, children who can read and write in school, but who do not necessarily read and write in other contexts. These students may do reasonably well at word calling, but they have no real understanding of what the words convey. It is time for a change" (p. 15).

With the substitution of only a few words and phrases, this assessment of the status of reading education could also be used to describe the situation that faces mathematics education. According to recent assessments of educational progress in mathematics, the majority of students can do basic computation reasonably well. However, when children are called upon to do higher order thinking in mathematics, or to apply mathematical concepts away from the classroom, results show that most are neither numerate nor functional in these areas of mathematical thinking (e.g., Dossey, Mullis, Lindquist, and Chambers, 1988).

Yet the connection between language and mathematics involves much more than similar failings in traditional teaching methodologies. More importantly, the language
mathematics connection offers positive new ways of thinking about mathematics education. Concepts such as active literacy and the natural learning environment have proved to be powerful tools in changing attitudes and practice in the field of language arts. Properly understood and adapted, the same concepts can work just as powerfully for us, and for our students, in mathematics.

What is active literacy?

Garth Boomer (1985) defines active literacy as a process that enables learners to go much deeper than the coding and encoding of written symbols. Such learners have experienced language not as a set of isolated skills, but as meaningful, purposeful, and inseparable from real life. Active literacy in reading and writing can find its parallel in a model of active mathematical literacy. For learners to achieve active mathematical literacy, they must go beyond the basic computational skills that have served both to define and to limit mathematics during recent decades (Monroe and McMain, 1994).

Learners who are to achieve active mathematical literacy must solve meaningful problems relating to many real-world contexts. Only by doing so can they develop an understanding of their world that is enhanced by mathematics, instead of coming to believe that mathematics — "doing sums" in school — has nothing to do with the real world. "No longer can society afford to view mathematics as a subject ... solely composed of arithmetic skills. Students must come to see it as a way of thinking, communicating, and solving problems" (Dossey et al., 1988, p. 13).

Natural learning environments

The natural learning environment is a useful model when thinking about how best to promote active literacy in
both language and mathematics. For those who are newcomers to this idea, it is important to recognize that such an environment is less a matter of the physical features of a classroom than a set of beliefs that permeate every aspect of a child's classroom experiences. There will be outward differences for every teacher and every class. However, all natural learning environments reflect a commitment to the basic premise that the natural motivation of the child is of prime importance in structuring learning experiences.

This does not mean that learning experiences are haphazard. In fact, teachers who are committed to creating a natural learning environment plan learning experiences with particular care, drawing on their insight into both the content to be learned and the needs and interests of the children who are doing the learning.

As a teacher educator in reading and mathematics, I have been particularly interested in identifying the principles that underpin natural learning environments and the success that they foster. There are five principles that stand out as being supported both by research and by the experience of practicing teachers, and it is striking that they all reinforce the importance of the language-mathematics connection. These principles, I believe, are among the most important guidelines that we can give to teachers of mathematics today.

Children come to school with a great deal of knowledge of both language and mathematics. In reality, children's language and mathematics are virtually inseparable; mathematics is embedded in the language they use naturally. For example, when asked "How old are you?" the child responds with a number name (e.g., five) and perhaps a concrete representation of the number (five fingers raised). Such directions as "Move to the center of the circle" or "Place your book on
the table" reflect our expectations as teachers that children have well-developed spatial awareness when they enter our kindergarten classrooms. Even mathematical problem solving is not new to young children. Research by James Moser and Thomas Carpenter (1982) indicates that children entering school already have successful strategies for solving problems involving addition and subtraction, as long as those problems occur in a natural language context.

When mathematical concepts are segregated from the language contexts in which they naturally occur, learning difficulties are likely to result. Language not only provides the labels with which to access and describe concepts, but also the fabric to be used in constructing networks of ideas and meaningful relationships between one concept and another. When we separate mathematics from its language context, we also miss valuable opportunities to use the child's language as a tool for evaluating progress and diagnosing strengths and needs (Cambourne and Turbill, 1990).

Students clarify their thinking and construct personal meaning when they verbalize what they learn. Students use their natural ability to create meaning through the use of language in numerous ways: working with manipulatives; solving open-ended problems; working cooperatively on a group project; explaining a strategy in writing or orally to a peer; or responding to questions posed by the teacher that call for divergent reasoning. In these ways, students are using their natural ability to create meaning through the use of language. The natural learning environment is essential in fostering such interaction.

The cognitive abilities necessary to learn both languages and mathematics are developmentally acquired. Ample research evidence tells us that these abilities can be nurtured,
but they cannot be forced — the child must be developmentally ready. The noted Swiss psychologist, Jean Piaget, developed a theory which identifies and explains the stages through which children proceed as they develop physical and logico-mathematical knowledge (Piaget and Inhelder, 1969). In helping us understand the thought processes of children, Piaget also provided the rationale for developing learning environments in which children construct their own knowledge from the inside, through mental activity and in interaction with the environment (Kamii, 1982). This constructivist approach assumes that children naturally construct knowledge as an interrelated whole and that they need only be limited by the constraints of their current developmental level.

The necessity for an environment that nurtures child development cannot be overemphasized. There exists within each child the potential for literacy in both language and mathematics. Given an appropriate environment, each child can be successful at his or her own level of development. Children listen, speak, draw, read and write in a variety of modes to develop active literacy in language. In just the same way, they need to use a variety of ways of communicating as they develop active mathematical literacy. According to the National Council of Teachers of Mathematics (1989):

... the study of mathematics should include numerous opportunities for communication so that students can: relate physical materials, pictures, and diagrams to mathematical ideas; reflect on and clarify their thinking about mathematical ideas and situations; relate their every day language to mathematical language and symbols; realize that representing, discussing, reading, writing, and listening to mathematics are a vital part of learning and using mathematics. (p. 26)
These forms of communication are most likely to occur in situations that encourage cooperation and the use of a variety of materials within a context of meaningful, purposeful learning. There is little room for rote memorization in this environment; students are busy developing concepts through active exploration with language and materials.

Language and mathematics are best learned not as isolated fragments of knowledge in artificially contrived situations, but as tools for the active construction of meaning. Frank Smith (1988) developed the metaphor of "the literacy club" to describe the community of language users to which children are admitted early in their lives and supported by more experienced language users as they engage in meaningful activities. The same metaphor serves equally well to describe the context within which mathematical literacy develops. As current views on the development of mathematical thinking emphasize, "children do not learn an abstract system of mathematics first and then attempt to apply it to various situations; instead, they learn ... mathematics as they use mathematics ..." (Jongsma, 1991, p. 442).

Just as reading cannot be defined as filling in the blanks on a workbook page, mathematics cannot be defined as finding answers to a set of computational exercises. Although computation has an essential role to play in mathematics, instruction must focus on problem solving, reasoning, and meaningful communication, not on narrowly defined skills practiced in isolation. Children achieve growth in active mathematical literacy through participation in meaningful mathematical activities. In this way children are welcomed to "the mathematical literacy club," in which they expect to — and are expected to — learn mathematics through meaningful interaction with other people.
The strategies that allow children to develop active literacy in language and in mathematics are those that will help them construct meaning. Please note that I have deliberately used the term strategies, not skills. Don Holdaway explains the difference between the two terms in the following excerpt from his now classic work, *The Foundations of Literacy* (1979):

The major difference between a "skill" and a "strategy" is the coordinating control of a human mind operating in purposeful, predictive, and self-corrective ways. The major difference, then, between "skills teaching" and "strategy teaching" concerns the presence or absence of self-direction on the part of the learner. In skills teaching the teacher tells the learner what to do and then "corrects" or "marks" the response. In strategy teaching the teacher induces the learner to behave in an appropriate way and encourages the learner to confirm or correct his [sic] own responses — the teacher does not usurp the control which is crucial to mastering a strategy. (p. 136)

Because students must continually develop, refine, and monitor strategies in order to be able to construct their own meaning, the development and application of strategies cannot be left to chance:

When making instructional decisions, we capitalize on the students' needs and interests. We try to strike a balance between following their lead and engaging them in projects which encourage them to explore a diverse range of strategies while learning specific mathematical concepts. (Jongsma, 1991, p. 443)

Such an environment requires planning. It requires careful planning and guidance to ensure that children not only develop a repertoire of strategies but acquire flexibility in
using them. It is this kind of environment that gives the children the ability and the confidence to apply these strategies in other content areas and in real-life situations. For example, when children have opportunities to study and apply mathematics through children's literature, their language and mathematics learning becomes an integrated whole.

**It can be done**

We know that almost all students enter school with a real desire and expectation for learning. They want to read and write, and they want to do mathematics. This eagerness quickly dissipates if we provide tasks that children do not see as meaningful or purposeful. There is ample evidence to suggest that active literacy in language and mathematics is not being achieved through traditional means. On the other hand, natural learning environments are proving to be successful in this area. Widely implemented in Australia and New Zealand and rapidly spreading to other nations, this approach recognizes that the natural motivation of the child is of prime consideration in structuring learning experiences.

It is easy to assume that natural learning environments can be replicated from classroom to classroom. To be effective, the classroom environment must be responsive to the needs and interests of the children in that particular classroom. In addition, the organization and methods we choose to use should reflect our own teaching personalities. Therefore, there is — and should be — no one model for successful implementation.

Changing from traditional teacher-centered methodology and organization to the implementation of a natural learning environment may require considerable reorientation in the ways we think about teaching and learning. Although teachers hold differing philosophies regarding how children
best develop active literacy in language, most of us agree that we should not be bound to a rigidly structured teaching program. Rather, we should plan and implement language development activities based on our knowledge of what children already know and what they need to know.

Similarly, we should plan experiences that communicate the structure and conceptual underpinnings of mathematics, not discrete sets of isolated skills. For example, students should be encouraged to rely on their knowledge of tens and hundreds to understand the concept of thousands. When they learn mathematics in this manner, they are developing strategies for "... building bridges between the new and the known" (Pearson and Johnson, 1978, p. 24). Thus students will construct the network of ideas necessary to develop a working knowledge of the content.

At the same time, we must also be careful not to impose artificial constraints when making curriculum decisions, many of which are determined more by tradition than by research. For instance, why should we wait to ask children to solve word problems using addition and subtraction until they have mastered the basic facts? We know that most children already have considerable facility in using addition and subtraction processes in their everyday problems — problems that occur within a natural language context — before they enter school.

Recent research conducted in language development indicates that it is both desirable and appropriate to accept and reinforce children's efforts in learning language, not just correct responses. Approximation, one of seven natural language learning conditions identified by Cambourne (in Butler and Turbill, 1984, pp. 5-9), is the phase of trial and error we go through in mastering any new skill. If our attempts are met
with encouragement and constructive feedback, we are more likely to persevere and refine our approximations until competence is attained. For example, young children learn to speak by approximating the forms of speech they hear in their environment. Their efforts are met with the encouragement and constructive feedback necessary for them to gain considerable competence in speaking during their early years.

The need for accepting and encouraging approximation in learning mathematics is equally important. For too long we have allowed our teaching methods to be dominated by the tyranny of the right answer, the demand for one, and only one, correct response. (And frequently we have accepted only one correct way of arriving at that response!) When children are encouraged to make approximations, they are developing powerful skills in such areas of mathematics as reasoning, number sense, and estimation. In addition, they will eventually discover the utility of approximations in the mathematics of everyday life. (Think about how infrequently we, as adults, require an exact answer to a complex mathematical problem. When we need an exact answer, and it requires computation, we would probably use a calculator. But even then we would use approximation strategies to check if the answer is reasonable.)

Fortunately, the educational climate is such that we can make needed changes more readily than in the past. Many school systems are responding positively to the challenges of the reform movement of the 1980s by encouraging teachers to examine the other options for classroom organization and curriculum development and implementation. The growing body of research on the development of literacy in both language and mathematics provides helpful direction. We no longer have to create all the instructional materials we need; published materials and manipulatives are available to aid us
in establishing a natural learning environment. Inservice models and mentorship programs that focus on teachers sharing with other teachers should help to provide support and to alleviate some of the management concerns. Discipline and classroom management models that encourage group planning and discussion can be especially helpful (e.g., Glasser, 1985).

Traditional assessments, artifacts of decades of skills-based instruction, remain one of our major obstacles in developing natural learning environments. For many years, achievement testing has driven the curriculum, determining to a large extent not only what, but how, language and mathematics have been taught. Although assessment may continue to drive the curriculum, major changes are forthcoming in the types of assessment tasks to be administered to students. Performance-based, authentic assessments — assessments that measure what students can really do when encountering real-world problems — offer us hope as we guide the development of the curriculum in more meaningful directions. Natural assessments such as folios, checklists, and anecdotal records have become widely accepted for monitoring student development in language. We can make similar use of natural assessments in mathematics.

Somewhere, early in their school experience, too many students lose the wonder and excitement that they bring with them when they enter the doors of school. And far too many students exit their formal school experience with neither the capability nor the desire for active literacy. The model of the natural learning environment offers us hope and practical guidance for helping our students achieve active literacy — in language and in mathematics.
References

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A Case Grammar Analysis of the Representation of African-Americans in Current Fifth Grade Social Studies Textbooks

Patrick P. McCabe

The portrayal of ethnic minorities in American history textbooks has been examined over recent years by numerous researchers (Banks, 1969; Agostino and Barone, 1985; Garcia and Tanner, 1985; Garcia, 1986; Lamott, 1988; Thomas and Alawiye, 1993). Most of these studies have focused upon factual veracity and the selection of life roles through which certain groups have been portrayed. Life roles include employment, daily routines, and positions of prominence achieved.

As a result of the predominant role given to the textbook in American education (Siler, 1987; Wade, 1993), the manner in which an author chooses to represent ethnic group members has great influence on the reader, especially in the elementary school years. It is therefore important to examine representations of ethnicities in textbooks to determine if there are any explicit or implicit negative messages created by the writer. As an example, if a certain ethnic group has always been represented as manual laborers and another group has always been represented as entrepreneurs, then a rationale for a biased image of each of those groups is presented to
the reader. While it is a fact that in American history African-Americans were held in slavery, to represent that ethnic group as capable of no more than slave roles would do an injustice not only to members of that particular ethnic group but also to the reader of that text.

It is the school's responsibility (along with other institutions within this society) to teach mutual respect for and understanding of all individuals, regardless of color, creed, or background. One way that schools can play a critical role in reducing prejudice is through the use of textbooks which present an equitable (devoid of racism, sexism, and other prejudices) representation of all individuals.

The purpose of this investigation, therefore, is to analyze the manner in which one particular ethnic group, African-American, is represented in current elementary school social studies textbooks.

Central to the analysis used in this investigation is the thesis of Chafe (1975) regarding the centrality of the verb to the semantic structure of the sentence. "The nature of the verb determines what the rest of the sentence will be like" (Chafe, p. 97). According to Chafe, it is essential to understand the critical role of the verb in order to understand the meaning of the sentence. As he has stated,

I take the position that the verb is the control center of a sentence, determining by its own internal specifications what the rest of the sentence will contain — not completely, of course, but to a significant degree (1975, p. 165).

Many educational and linguistic researchers (Crothers, 1979; Dressler, 1978; Irwin, 1986; Merrell, 1985) have
investigated textbooks' linguistic structure by focusing upon units larger than the sentence such as the paragraph or chapter. These researchers have focused upon "text cohesiveness," the manner in which the text is unified around a topic. They have claimed that constraints which cross sentence boundaries (anaphoric relationships, propositional structure, and recursiveness) are essential to understanding the linguistic nature of the text. Such researchers have suggested that a sentence level analysis is inadequate. However, text cohesiveness research should not be conceived of as inconsistent with or contradictory to a case analysis. While text cohesiveness is a macro examination of the linguistic structure, case analysis is a micro examination of one of the elements of text cohesiveness: the sentence. In 1975, Chafe recognizing this controversy stated the following:

_Syntactic description has usually taken the sentence to be its basic unit of organization, although probably no one would deny that systematic constraints exist across sentence boundaries as well. From time to time some attention has been given to "discourse" structure, but the structure of the sentence has seemed to exhibit a kind of closure which allows it to be investigated in relative, if not complete independence (p. 95)._  

Method

**Material.** Five fifth grade social studies textbooks with a publication date of 1991 were used in this investigation. These were the most current editions at the time of this study and represented five major publishers (listed in alphabetical order): 1) D.C. Heath and Co.; 2) Harcourt, Brace and Jovanovich; 3) Houghton-Mifflin Co.; 4) Macmillan-McGraw/Hill School Publishing Co.; and 5) Silver-Burdett and Ginn.
Procedure. Sections of text were located, case relationships were identified, and noun ethnicity was determined.

Locating sections of text. Utilizing the index of each textbook, the descriptors "African-American" and "black" were used to locate possible sentences for analysis. Sections of text were then identified. A section was defined by first locating the sentence in which the targeted words, African-American or black, appeared. For example a page cited in the index as having the word African-American might have a sentence such as the following: Jesse Jackson started a campaign to ensure that all African-Americans were registered to vote. For the purposes of this investigation and given the above example, a section would consist of the paragraph in which this particular sentence was located. However, if another contiguous paragraph on that page had the terms cited in the index, African-American or black, it was also included as part of the same section of the text. A section of text, therefore, consisted of at least one paragraph and might consist of additional contiguous paragraphs which included the descriptors from the index. Other non-contiguous, eligible paragraphs on the page comprised additional sections according to the same criteria. This was done for all pages cited in the index of all five books.

The decision to identify sections of text was significant for the analysis because it was an objective way to allow for an examination of other sentences close to that in which the target word appeared. If solely the sentence with the target word was examined, an African-American noun would by definition always be included. This would not have allowed for the possible inclusion and analysis of nouns other than African-American in sections focusing upon African-Americans and the sample would have been biased.
Unfortunately, by using this method it was possible for a portion of text which contained information about African-Americans to be omitted from the pool of sentences for possible analysis if that particular portion did not contain the descriptors African-Americans or blacks and was not listed in the index of the text. By using the same criteria (descriptors) in the index of each book, the pool of possible sentences to be analyzed was objectively selected from throughout the five textbooks. It was felt that the random identification of sentences controlled for any selection bias. An alternate, more cumbersome, and probably no more effective method of final sentence selection would have been to read the textbooks, to list all the sentences related to the topic, and to then identify sections of text from which sentences could be randomly selected.

The sentences in each section or sections of the five textbooks were then numbered, starting with number one for each text. There was a total of 123 sentences in all five textbooks.

Next, a table of random numbers was used to identify ten sentences from each text, resulting in fifty randomly selected sentences which formed the basis of the text to be analyzed.

**Analysis of case relationships.** A case grammar analysis was then used to examine the verbs (or verbal phrases) associated with the nouns in the randomly selected sentences. Case grammar is a semantic examination of the relationships which nouns have with verbs. Five selected verb-noun relationships based on Chafe's (1975) theory were examined. They were: 1) state-patient; 2) process-patient; 3) action-agent; 4) experiential (as a state)-experiencer; and 5) experiential (as a process)-experiencer.
1. **State-patient.** In a state-patient relationship, the verb represents a state. The noun (N) associated with the state verb is considered to be a patient. Consider the following sentence: "African-Americans were slaves."

The verb is "were slaves." It is a state (or stative) verb because it describes a state or condition of the noun, African-Americans. According to Chafe (p. 98-99), state verbs do not allow an answer to the question, what happened? or what's happening?

2. **Process-patient.** In a process-patient relationship, the verb describes a change in the patient. According to Chafe, the criteria for a process verb is that such verbs do not allow a simple action sentence as an answer to the question: "What happened to N?" (1975, p. 100). Process verbs describe what happened to the noun associated with the verb; process verbs do not describe what N did. Consider the following sentence: "African-Americans became slaves."

The verb is "became slaves." It is a process verb because it describes a change that has occurred regarding the noun African-Americans. The verb does not describe that which the noun did, instead it describes what happened. The noun associated with a process verb is by definition the patient of the sentence.

3. **Action agent.** In an action-agent relationship, the verb does not describe a state nor does it describe a process; rather, it tells what a noun did. According to Chafe, the criteria for an action verb is that it can answer the question: "What did N do?" where N is some noun. In such sentences, the noun associated with the verb is the agent, the one who
performs that action. Consider the following sentence: "African-Americans fought for freedom."

The verb is "fought." It is an action verb. The agent in this sentence is the noun African-Americans.

4. **Experiential/state-experiencer.** In an experiential state-experiencer relationship, the verb describes a mental disposition. Such verbs qualify as state verbs because they describe a mental experience such as knowing, wanting, feeling, or liking. According to Chafe, such verbs describe a noun which is "Mentally disposed in some way, one with respect to whose mental experience (something) was wanted, an answer known, or the asparagus liked" (1975, p. 145). Also according to Chafe, these verbs do not provide an acceptable answer to the question "What happened?" so they cannot be considered process verbs, rather they describe a state of mind.

The noun associated with such verbs is an experiencer. Consider the following sentence: "African-Americans wanted to be free."

The verb is "wanted to be free." It describes the mental experience of the experiencer noun, African-Americans.

5. **Experiential/process-experiencer.** In an experiential/process-experiencer relationship, the verb describes something that has happened. Such verbs do provide an acceptable answer to the question "What happened?"

Experiential/process verbs are attached to "Sensory perception which is not conceived of as something that takes a certain amount of time for its accomplishment" (Chafe, 1975, p. 145). The noun associated with such verbs is an
experiencer." Consider the following sentence: "African-Americans learned the answer."

The experiencer/process verb in this sentence is "learned." It describes what happened to the experiencer now, African-Americans.

**Determination of noun ethnicity.**

Critical to the purpose of this investigation, a judgment was also made regarding the ethnicity of the noun or nouns associated with each of the verbs in the fifty sentences. In some situations it was necessary to examine the context surrounding the target sentence to make a determination regarding the antecedent of a pronoun or anaphoric referent (they, some of them).

All nouns were classified into one of three categories as follows.

**African-American nouns.** Obvious examples are George Washington Carver, and Jesse Jackson where the noun is clearly African-American. When it was difficult to clearly determine the ethnicity of the noun, but when the noun could, at least in part, be reasonably interpreted as African-American, it was considered to be African-American. This was especially true for collective nouns. Thus, Lawyers for the NAACP in sentence a, and Civil Rights supporters in sentence b below both qualify as belonging to this category.

a. Lawyers for the NAACP fought the ruling.
b. In 1963, Civil Rights supporters held a rally in Washington, D.C.
Non African-American nouns. Obvious examples are white landowners and Cornwallis. The noun, union soldiers, was also considered to be non African-American. While the Union army certainly had black soldiers in its ranks, it did not consist of mostly African-Americans.

Other. This category consisted mostly of nouns which could not be classified into either of the two categories enumerated above. Most of the nouns in this category were non-animate things or objects given animacy by the nature of the sentence. Examples are: State laws, The church, and The Emancipation Proclamation in the sentences below.

a. State laws prohibited anyone to teach slaves to read and write.
b. The church helped Blacks when they were sick.
c. The Emancipation Proclamation allowed slaves to be free.

The five case relationship categories and the three noun categories enumerated above were used as the basis of a qualitative linguistic analysis of the fifty sentences randomly selected from the social studies textbooks used in this investigation. To illustrate this further, consider the three action-agent sentences below. After first determining that the noun was an agent, it was then also classified as belonging to one of the following three categories: 1) African-American; 2) Non African-American; and 3) Other. Respective sample sentences follow:

a. Slaves sold shoes with cardboard soles.
b. White landowners sold shoes with cardboard soles.
c. Union factories sold shoes with cardboard soles.
It was hoped that by analyzing the case relations and by determining the ethnicity of the nouns within sections of textbooks focusing on African-Americans, the semantic intent of the writer(s) would be illustrated and elucidated.

A second investigator, a college professor with an interest in and a knowledge of the case grammar framework according to Chafe, also analyzed the sentences. The interrater reliability among the sentences analyzed was .89.

Examples of analyzed sentences from the social studies textbooks are presented in Appendix A.

Results

The results of this investigation are illustrated in Appendix B.

Ninety-three noun-verb relationships were classified in this investigation. Overall, over twice as many verbs (67) were associated with African-American nouns compared to the two other noun categories combined. Thirteen verbs were associated with non African-American nouns such as planters, the French nobleman, whites, and colonial leaders. Thirteen verbs were associated with other nouns, such as union factories, states, or it (used as a pronoun for clock, for example, or for an ambiguous situation such as "It was against the law").

With the exception of the experiential (process)-experiencer relationship, the verbs in all categories were associated with African-American nouns, compared to the two other noun categories combined, in at least a two to one ratio. There were significantly more action-agent relationships compared to the other case relationships associated with African-American nouns. (This was also true for the other
two noun categories, non African-American and other.) The experiential categories combined were used least frequently with all three noun types.

Findings regarding specific case structures follow:

State-patient. There was a total of eighteen state-patient relationships. Twelve noun-verb relationships were related to African-Americans, one was related to non African-American nouns, and five were related to other nouns.

Process-patient. There was a total of thirteen process-patient relationships. Twelve noun-verb relationships were related to African-Americans, none were related to non African-American nouns, and one was related to other nouns.

Action-agent. There was a total of fifty-one action-agent relationships. Thirty-five noun-verb relationships were related to African-Americans, nine were related to non African-American nouns, and seven were related to other nouns.

Experiential (state)-experiencer. There was a total of six experiential (state)-experiencer relationships. Five noun-verb relationships were related to African-Americans, one was related to non African-American nouns, and none were related to other nouns.

Experiential (process)-experiencer. There was a total of five experiential (process)-experiencer relationships. Three noun-verb relationships were related to African-Americans, two were related to non African-American nouns, and none were related to other nouns.
Discussion

There results have significance for publishers of elementary social studies textbooks, educators who teach social studies at the elementary level, those involved in teacher education programs, and researchers who are interested in a qualitative linguistic analysis of social studies textbooks.

**Publishers of elementary social studies textbooks.** That there were many more noun-verb relationships related to African-Americans compared to non African-American nouns and other nouns combined is not surprising given that the sentences analyzed were taken from sections in textbooks focusing upon African-Americans or blacks.

It is comforting to know that, at least in the five books analyzed, the emphasis as described as a result of utilizing the case grammar analysis was on African-American nouns. Imagine elementary school social studies textbooks in which sections of text identified in the index as focusing upon African-Americans in reality concentrated upon another group such as white landowners, Union soldiers, or no group in particular. Such misadvertising would result in creating an invisible ethnic group, one advertised as included in the text narrative, but in reality not represented in an equitable fashion. In such an unfortunate situation one message to the reader might be that the ethnic group had not played a vital role in the fabric of the society described in the text and is therefore not worthy of study. Fortunately, this was not the case in this investigation of these elementary social studies textbooks' treatment of African-Americans.

The preponderance of action-agent constructions compared to other noun-verb relationships to represent African-Americans facilitates the inference on the part of the reader that even though African-Americans were held as slaves and
their lives were constrained, they were not completely passive. For example, sentences like 1) "Some returned to Africa"; and 2) "He built the first clock made in America" indicate initiative taken by the noun. These sentences were classified as action-agent constructions. (The nouns in these examples are related to African-Americans: in the first sentence, black slaves, and in the second, Benjamin Banneker.)

There were relatively few experiencer (state) verbs associated with African-American nouns in the textbooks analyzed. As a result, infrequently was the reader made aware of the feelings of the African-American. Sentences like "He wanted to become a doctor" and "Blacks could not live where they wanted" reveal the inner feelings and desires of African-Americans. Experiential (state)-experiencer sentences like "Some wanted to return to Africa" would have signaled and revealed, to the degree that they existed, an important mental experience of the African-American (whether it ever became a reality or not). In this example, the mental experience is the state of wanting to return to Africa; therefore, an experiencer (state) verb, "wanted," would be used. "Some returned to Africa," (example number one in the previous paragraph) solely describes an action taken.

In the textbooks analyzed for this investigation, there were few of these constructions compared to other verb noun relations examined. The presence of experiencer (state) verb-noun constructions in such a relatively low frequency as was found in this investigation does not provide the reader with enough evidence to know the heart and soul of the African-American as he or she has journeyed through history in this country as represented in these textbooks. While made aware of what the African-American did or what actions he or she took (individually or collectively), equally important inner feelings were not necessarily reflected in these textbooks.
The results of this investigation revealed that the verbs used by these five textbook publishers when describing African-Americans nurture a feeling that African-Americans were active and not passive. Even though enslaved and subsequently subject to prejudicial conditions, the African-American, as portrayed in these textbooks, was an active individual, mostly an agent, in the generic as well as linguistic sense of the word.

Unfortunately, in the material analyzed in this investigation, the textbook publishers provide us with a picture of mostly the outward manifestations of behavior, hence a frequency of action verbs (in all noun ethnicity categories). Too infrequently, however, is the reader given insight into the mental experience of the African-American.

One explanation for this might be the source of the history of the African-American experience in this country. Chronologies of what people do or have done are too often gathered from a second hand accounting of the facts. A first hand reporting of events would reveal more personal reactions to times and events by the historical character or characters, and would result in a greater use of experiencer (state) verbs in the textbook narrative. For example, knowing that Benjamin Banneker made the first clock in America from a newspaper from that time and then rewriting this historical fact for a school textbook will probably be recorded as a third person narrative: "He built the first clock in America." However, if the source of the information is not an old newspaper, but Benjamin Banneker's diary (if such a diary existed), it is more likely that Banneker's aspirations, feelings, and wants would be revealed. As a result, sentences such as the following (created by the author of this article) might be included in a section on Benjamin Banneker:
He learned all that he could about clocks and how the gears worked. He knew that he would be able to build a clock himself. He felt very confident in his ability. Knowing that he built the first clock in America made him feel very proud.

Another explanation of the relative lack of experiential (state) verbs might be related to space allocations in textbooks. While information about the feelings and other mental experiences of an individual may be available to publishers, pressure to publish facts and figures may take precedent. Those who produce textbooks write them to make a profit in a national market, satisfying numerous state educational committees which may have different social or political goals for the educational process in their respective state. It is fair to say that to the degree that this situation exists, that is the degree to which the publisher is placed between a rock and a hard place. The best way to sell the book and to make the maximum profit may be to take the politically safest and most neutral position by simply reporting facts and figures. Perhaps if publishers' market analyses indicated a national unity of purpose regarding elementary social studies textbooks, this might encourage a change in textbook development.

Another issue which is important is the goal of social studies and history textbooks. The goal of social studies in the elementary school should be not only to acquire facts and figures, but also and more importantly to understand the nature of the person or persons described in textbooks. While it is noteworthy that African-Americans', or any individual's or group's, achievements be chronicled, individually or as a group, and that African-Americans be accurately represented as active in seeking to change their collective or individual environment in a variety of ways, what is equally important
to communicate to the reader are the feelings, wants, and desires of African-Americans. This is important because feelings of empathy for those described in the text will then be more likely to be nurtured in the mind of the readers. This is an important first step in reducing prejudice and xenophobic reactions to those with whom there may be little familiarity.

In the long run, that understanding will help the reader to empathize with the individual depicted in the text because he or she may have similar feelings, knowledge, and desires. Such empathy will result in a greater emphasis on similarities among people and a de-emphasis on differences. This will result in a greater opportunity for mutual respect to be created across racial backgrounds.

Educators who teach social studies at the elementary level. One way that the classroom educator can supplement these textbooks so that the elementary school student can acquire some insight into the mental experience of the African-American is through the use of literature appropriate to the elementary grade level. As an example, reading about the life of Sojourner Truth either after or before reading about slavery in the social studies text will provide the reader with the necessary insight as to her character. (This assumes, of course, that the biography or autobiography of Sojourner Truth meets standards of equity and is one which is well written.) Once such insights are acquired, the reader is more likely to relate to Sojourner Truth, in this example, as similar to himself or herself in terms of universal human aspirations and feelings.

It is when commonalities are discovered between people who differ in some regard that the fear of the unknown, an essential ingredient in the development of hate and prejudice, will decrease and similarities will become important. When the inner thoughts and feelings of individuals
portrayed in social studies textbooks are perceived as common with those of the reader, a bond is created between the reader and the historical character. This is in spite of the fact that the character portrayed in the textbook may have lived a hundred or more years ago and may differ from the reader in some or many ways. The elementary student should understand that the individuals described in his or her social studies text were real, in every sense of that word, not fictitious characters.

Those involved in teacher education programs. It behooves the teacher to supplement the text with that information that he or she thinks is lacking. This calls for a well educated elementary social studies educator, one who realizes that the textbook alone does not constitute the curriculum. Part of the responsibility for the development of high quality educators in the social studies belongs to teacher education institutions. Such individuals would be more likely to draw upon the literature from or about the time period, person, or topic being studied in order to supplement the social studies text. As an example a teacher who includes an assignment from an autobiography about Rosa Parks as a complement to reading a section in a social studies text about her will increase the chances that his or her students will have a better understanding of that person as a human being with feelings and aspirations, not just an historical figure. This is also reflective of good literacy education methodology.

Individuals with an interdisciplinary education, those who can recognize and appreciate the complementary relationship among the liberal arts, will be more likely to include other sources of information or other ways of representing knowledge to the students in their classes. This skill can be taught in the teacher education programs in universities and colleges. Courses of study in which literature, for example, is integrated into methods of teaching social studies is one way
to develop an interdisciplinary approach to the teaching of the social studies, as well as in other content areas.

Researchers who are interested in a qualitative linguistic analysis of social studies textbooks. The case grammar analysis used in this investigation proved useful in that it provided insights regarding the representation of African-Americans based on a qualitative linguistic analysis of social studies textbooks. The conclusion that there was a lack of emphasis upon the feelings of African-Americans as manifested by a lack of experiential verbs echoes what others (Beck, McKeown, and Gromoll, 1989; Tyson and Woodward, 1989) have said about the bland nature of social studies textbooks written for the elementary school level. According to those researchers, social studies textbooks are problematic, in part at least, because of a depersonalized writing style (McCabe, 1994).

In part this investigation is a response to Wade's (1993) call for more analyses of the literary nature of social studies textbooks to complement numerous content analyses. The redundancy of the conclusions of this study with those of previous investigators who have examined social studies textbooks from different perspectives and for different purposes supports the value of the case analysis methodology used.

References


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Appendix A*

Representative Examples (with rationale) of Analyzed Sentences from Elementary Social Studies Textbooks

1. Most planters bought only one or two slaves which meant that families were often broken up.
   
   Analysis of case relationships: a) action-agent
   b) state-patient
   
   Rationale: a) The action verb "bought" is associated with the agent noun, "planters." "Planters" was considered a non African-American noun.
   b) The verb phrase "were broken up" is a process. "Families" is the noun associated with the verbal phrase. "Families" was considered an African-American noun.

2. Colonial leaders were afraid that, if slaves were given guns, they might use them to win their own freedom.
   
   Analysis of case relationships: a) experiential (state) - experiencer
   b) process-patient
   c) action-agent
   d) action-agent
   
   Rationale: a) The verbal phrase "were afraid" is a state experiential verb because it depicts a "mental disposition" which according to Chafe, "Which is not conceived of as something that takes a certain amount of time for its accomplishment" (p. 145). The noun associated with such verbs is an experiencer, "colonial leaders" in this example. "Colonial leaders" was considered to be a non African-American noun.
   b) The verbal phrase "were given" is a process. "Slaves" is the patient noun associated with such verbs. "Slaves" was considered to be an African-American noun.
   c) "Use" is an action verb. "They" is the agent noun associated with such verbs. In this case it is a pronoun. The antecedent of "they" is "slaves" so it was considered an "African-American" noun.
   d) "To win" is an action verb. "Slaves," its agent is African-American.

3. Another person saw African-Americans starve themselves and go without clothes in order to send their children to school.
   
   Analysis of case relationships: a) experiential process - experiencer
   b) action-agent
   c) action-agent
Rationale:  

a) The verb "saw" is a process experiential verb because it depicts "sensory perception" which according to Chafe, "Is not conceived of as something that takes a certain amount of time for its accomplishment" (p. 145). As "saw" is used in this sentence it answers the question: "What happened?" Therefore it qualifies as a "process" verb. The noun, "another person," associated with this verb, is an "experiencer." It was considered to be a non African American noun.

b) The verbal phrase "starve themselves and go without clothes," while a compound phrase, qualifies as an action. The noun associated with it is African-Americans. It is an agent and obviously an African-American noun.

c) The verb "to send" qualifies as an action. The noun associated with it is African-Americans because the phrase translates roughly as "... in order that they would be able to send..." where "they" is a pronoun taking the place of the noun, African-Americans. It is an agent.

4. Freedom felt so good to Harriet Tubman that she became a conductor on the Underground Railroad.

Analysis of case relationships:  

a) experiential process-experiencer  
b) action-agent

Rationale:  

a) The verbal phrase "felt so good" qualifies as experiential (process) because it describes something which happened to Harriet Tubman which was not the result of a long period of time to build up. The noun associated with the verb is "Harriet Tubman," in this case, an experiencer which was obviously African-American.

b) "Became a conductor" is a verbal phrase which describes an action, something which "she," Harriet Tubman, did. The noun associated with action verbs is an agent. Since the "she" refers to Harriet Tubman, it qualifies as an "African-American" noun.

5. The church helped blacks when they were sick and in need.

Analysis of case relationships:  

a) action-agent  
b) state-patient

Rationale:  

a) "Helped" is an action verb. "The church," while not an animate noun, is by definition an agent. It is classified as an "other" agent.

b) "Were sick and in need" is a state verbal phrase. "They" is a pronoun which is a patient taking the place of "blacks," an African-American noun associated with the state verb.

* The underlined words in the sentences did not appear in the fifth grade social studies textbooks. They were added for the purpose of this table.
Appendix B

Results of Case Grammar Analysis of Social Studies Textbooks

<table>
<thead>
<tr>
<th>Verb-Noun Relationship</th>
<th>Ethnicity of Noun</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Af.-Amer.</td>
</tr>
<tr>
<td>State-Patient</td>
<td>12</td>
</tr>
<tr>
<td>Process-Patient</td>
<td>12</td>
</tr>
<tr>
<td>Action-Agent</td>
<td>35</td>
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<tr>
<td>Experiential(State)-Experiencer</td>
<td>5</td>
</tr>
<tr>
<td>Experiential (Process) Experiencer</td>
<td>3</td>
</tr>
<tr>
<td>TOTALS</td>
<td>67</td>
</tr>
</tbody>
</table>

Storytelling Guide Brings Children and Books Together

"People who work with children need to understand the importance of stories in the lives of children and the unique contribution that library storytelling can make in bringing children and books together, in helping children acquire language and literacy skills, and in giving children an appreciation of their literacy and cultural heritage," writes Augusta Baker in her foreword to Storytelling: Art and Technique, Third Edition (R.R. Bowker, 1996).

This classic guide to storytelling has been fully revised and updated by Ellin Greene, who served under Baker as the Storytelling and Group Work Specialist/Assistant Coordinator of Children's Services at the New York Public Library, and co-authored the first two editions of Storytelling: Art and Technique. "Storytelling has exploded since the second edition of the book was published nearly a decade ago," says Greene.

For more information or to order a copy of Storytelling: Art and Technique, Third Edition, call R.R. Bowker toll-free at 1(800) 521-8110.
EMPOWER: A Framework for Teaching and Learning with Text in High School and College Classrooms

Wayne M. Linek
Mary Beth Sampson
Michael Sampson
Kathleen A. J. Mohr
Lois Botha

Students are frequently expected to deal with information that does not fit into their current schemata or cognitive structures. For example, students are often frustrated when asked to make sense out of challenging expository text. Such a high level demand often results in dissonance that may deter many learners. This may be due to a lack of knowing how to impose order on information found in text and often results in a lack of comprehension and understanding. Many instructors at all levels currently resort to round robin reading, lecturing, and reading texts aloud in their classes because of their frustration with the inability of students to read the texts.

EMPOWER is a framework for teaching that allows the instructor to become a facilitator of learning rather than the source of knowledge. This framework for teaching is also a structure for learning that encourages social construction of knowledge and independence. EMPOWER combines several
strategies to scaffold students through a metacognitive organizing process. This process enables them to reduce emotional and cognitive dissonance while making connections between textual information and their own cognitive structures. Thus, when employed reflectively by the instructor and students, EMPOWER provides a powerful framework for students to learn how to structure their own learning.

The process

EMPOWER provides instructional keys to the steps we, as experts, use to reduce frustration while constructing meaning and gaining knowledge. EMPOWER involves seven stages: Elicit, Monitor, Pose, Organize, Web, Engage, and Reflect. These stages help instructors take their students through a prereading strategy, a during reading strategy, and a post reading strategy that include heavy doses of metacognitive reflection. The seven stages are designed to help instructors move away from the "assign and test" mode of teaching and empower students to become effective and efficient constructors of meaning when interacting with complex expository text.

Stage one: elicit

Learners elicit prior knowledge by participating in a prereading strategy. This strategy builds a bridge between students' cognitive structures and the material to be covered in the text. For example, in a college literacy methods class the instructor used List, Inquire, Note, and Know or LINK as a pre-reading strategy (Vaughan and Estes, 1986). When preparing students to read Reading Without Nonsense (Smith, 1985), he began by asking students to list in three minutes all the words they associated with the cue "reading comprehension." When using LINK the cue word should be a concrete object or a term that serves as a central concept to the topic at
hand, will trigger responses in all students, and is written on a chalkboard or transparency.

Once each student had completed his/her list, the instructor gave each student the opportunity to share while recording the associations on a chalkboard. Students listed terms such as "testing," "understanding," and "meaning." Once the list was completed, the students were encouraged to inquire about the words. The instructor modeled a question that inquired into the reason why a word was listed. After the student explained, the instructor shifted to the role of moderator. Students then asked one another about the associations that had been made and asked for clarification/reasoning. This step in the procedure serves to heighten prior knowledge, allowing students to self-correct, and raises questions about the material to be read.

Upon completion of the discussion, students were asked to turn over their paper and note in one minute all the words they now knew in relation to the initial cue word. The quality of associations improved while the quantity of associations increased because students were able to draw upon a combination of prior knowledge and class discussion. Thus the eliciting stage, in this case the LINK strategy, magnified what students knew about a topic because they had established multiple links to their prior knowledge.

**Stage two: monitor**

The purpose of stage two is to get students to actively monitor their comprehension. A combination of Interactive Notation System for Effective Reading and Thinking (INSERT by Vaughan and Estes, 1986) and concept squares (Vaughan, 1990) is used to heighten comprehension monitoring during independent reading. INSERT serves as a formal method of assisting readers to interact with the text in a
meaningful, productive manner. The instructor asks students to monitor their comprehension by placing the following marks in the margins of the text while they are reading:

— I knew that
* I didn't know that
? I just don't understand
! That's worth remembering

To combine concept squares with INSERT, the instructor gives students a sheet of paper that is divided into four squares. Each square is titled with one of the above headings. When students have finished reading a chapter, they review their marks and list at least three items in each box. This monitoring/categorizing process allows students to move forward when they don't understand something while critically evaluating the importance of the information gained from the text.

In the literacy class the instructor began stage 2 by asking what questions participating in the LINK strategy had brought to students' minds. The students generated questions about reading comprehension, shared them with the class, and thereby set their own purposes for reading. The instructor then modeled how to monitor comprehension using INSERT and concept squares by placing a paragraph from the text on a transparency and thinking aloud through the comprehension monitoring process before assigning the chapters to be read for homework.

Stage three: pose

The purpose of stage three is to get students to pose their questions. To begin the next class session, the instructor asks students to share their concept squares in small groups. When the text is conceptually dense and challenging, students
may have minimal information for the "I knew that" square and have lots of questions about the "I didn't know that" and "I just don't understand" squares. When this happens, students often feel overwhelmed and may believe that they "can't get anything out of" their reading assignment. This occurs because they are unable to see connections to their prior knowledge or they feel that they do not have the ability to make sense of the text. This "tunnel vision" and feeling of inadequacy may limit their opportunities to make meaning from the text.

To dissipate the tunnel vision and develop a risk-free environment for asking questions, students share their questions in small groups. This small group sharing gets some of the easy questions answered while it permits individuals to recognize that they are not alone in their confusion or frustration. Each group prepares a list of questions, that they cannot answer, to share with the entire class. The instructor then scribes as each group takes turns sharing their questions until all questions have been exhausted, listed, and the dissonance is out in the open.

**Stage four: organize**

The purpose of this stage is to get students to organize or sort their questions (adapted from Vacca and Vacca, 1993). The instructor, or topic expert, serves as a facilitator to assist the students in categorizing what they don't understand. Questions that help students create powerful categories and get at conceptual substance should be asked. As students identify relationships among questions, the instructor color codes the categories. For example, in the literacy methods class the instructor asked, "Which questions are similar? How? Why?" As students volunteered a connection between two questions and explained their reasoning, the instructor circled the questions in red and restated the connection with more
specific conceptual terminology. The process continued with students creating new categories and adding to the original category until all questions were categorized. Then the instructor asked, "How would you label the categories of questions you have identified? Why?" Students were then able to identify topics for each category of questions and give reasons for their categorization. This process facilitated the organization of dissonance, dissipated student frustration, and prepared students to focus on what was learned and what was important.

Stage five: web

The purpose of this stage is to have students create a web of information. The students return to small discussion groups and each group develops a combined list of all that they knew, found out, and thought was worth remembering about the textual material. The instructor then gives each group the opportunity to take turns and share their list with the whole group one item at a time. The instructor records the information on the chalkboard or overhead transparency until all groups have shared all non-repetitive information. Students are then encouraged to clarify items on the list of information developed by the whole class and explain why they are important. First the instructor models a question that inquires into the reason why concepts/ideas were listed and the group members explain their reasoning. Then the instructor shifts to the role of moderator and students ask one another why the information shared was perceived as important. This step encourages students to clarify their reasoning, allows students to self-correct, and solidifies important concepts from the reading.

After all student questions have been exhausted and concepts have been rationalized the instructor serves as a facilitator once again to assist the students in categorizing their
information into a web or semantic map. For example, in the literacy methods class the instructor asked, "Which bits of information appear to go together?" The students were able to create distinct categories of information that were color-coded by the instructor. Then the instructor asked the class to discuss why they were categorizing things the way that they were. This step enabled students to further organize and clarify their thinking so that they could explain overarching concepts and logically web the information. While a fair amount of dissonance still persisted, students began to see links between their categories of questions and the web of information.

**Stage six: engage**

Now the students are ready to engage or hook up the categories of questions with the web of information. The instructor once more acts as a facilitator by asking which parts of the web of information and which concepts connect to the categories of questions that were previously asked. At this point most students readily see multiple connections that the overwhelming dissonance and tunnel vision prevented them from seeing during Stages 2 and 3 and lively discussion of these connections ensues. If the discussion bogs down before all logical connections are made, the instructor can direct formation of cognitive links by noting a particular concept and a specific question and asking how they might be connected. However, during this stage the instructor shifts mainly to the role of valuing the knowledge students constructed from the text and congratulating them on answering their own questions. This stage helps to build self-efficacy while emphasizing that the meaning construction process resides within the student.
Stage seven: reflect

In a final stage, students are asked to reflect on: 1) how they felt; 2) why they had problems understanding the material in the beginning; 3) the process they used to construct meaning from text; 4) strategies they learned to EMPOWER themselves as learners, and 5) what they understood as a result. Once again, the instructor asks questions to help students recognize each of the stages and the various processes employed to remove blocks to comprehension during each stage. Discussion on how EMPOWER helped them to structure their own learning typically emerges. This reflection stage helps students to recognize the combination of strategies employed to monitor and regulate their feelings and understanding. The final stage also provides insight into how students can structure their independent learning more effectively and efficiently.

Conclusions

Although the total amount of dissonance is increased initially, students are able to share the questions they had over the material to reduce the negative feelings that may block cognitive connections. The problem of being overwhelmed is mediated by the instructor who serves as a facilitator to structure this dissonance. The structuring or categorizing process reduces the incongruities and permits students to move to a metacognitive level. This movement later empowers students to construct connections between their questions and the information in the text.

By sharing and discussing the cumulative knowledge that had been comprehended, students notice that comments from other groups answer some of their questions. Thus information from others' perspectives allows them to fill gaps in their own cognitive structure. While the discord is magnified by sharing the questions, so too is the collective
knowledge. The metacognitive categorizing helps them to structure what they know so that they are able to form links between the categories within their cognitive structure and the categories of dissonance. In so doing, they are able to answer the questions raised, reduce the dissonance, and structure their own learning. Thus, students see how to use metacognitive categorizing to facilitate their own learning so that their questions and textual information become a web of knowledge.

Admittedly, this is a somewhat lengthy process, but so is constructing meaning from demanding expository text. A key benefit of this framework is that it scaffolds instructors and learners through all the stages necessary for successful personal and social construction of meaning from challenging expository text. This is important because many content reading strategies focus only on the beginning, middle, or end of the meaning construction process involved in reading expository text. EMPOWER combines an entire meaning making cycle in seven easy-to-understand steps: Elicit, Monitor, Pose, Organize, Web, Engage and Reflect.

The pace of introducing the steps and stages is left to the discretion of the instructor because the understanding of how to use this framework will depend on the sophistication of the learners. For example, a seventh grade teacher might introduce and develop the use of this entire framework over the course of three weeks. A college instructor might choose to push through the entire framework in two class periods but continue to facilitate discussion in future classes using only steps three through seven. Regardless of the introductory and reflective pace the instructor chooses, this framework provides a complete cycle of the strategies necessary to help learners effectively structure their thinking and empower themselves as independent learners.
References

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Using Literature to Build First Grade Math Concepts

Gwyn E. Lightsey

In the last decade, many elementary teachers have advocated a holistic approach to education. Teachers use thematic units to incorporate reading and writing into all areas of the curriculum. However, teachers have often continued to teach mathematics in isolation. Traditionally, the math program consisted of instruction in finding answers to textbook math problems and memorizing addition, subtraction, multiplication, and division facts. Except for learning to count money or tell time, math seemed to have little application for children in daily life. The majority of the math curriculum was made up of skills, but the language for understanding mathematics was neglected. One way to integrate mathematics into other curriculum areas and help learners become "active constructors of mathematical knowledge is through literature" (Whitin and Wilde, 1992). In an effort to enhance my first grade math program, I searched for authentic ways to incorporate literature. In this paper, I will share what I have learned.

Categories of books

According to Gailey (1993), children's books appropriate for teaching mathematics may be divided into four categories. First, counting books which "reinforce number concepts and can be used to teach addition, subtraction, and in some instances multiplication and division (Gailey, 1993). Second, number books, which reinforce a particular number. Two
examples Gailey uses are Jane Moncure's *My Six Book* (1986), and Jeffrey Moss' *Five People in My Family* (1983). Third, storybooks, which may be used to introduce or reinforce mathematical concepts. Fairy tales, folk tales, or any other stories in which the author touches on a mathematics concept can be used. For instance, Gailey (1993), used Dr. Seuss', *The 500 Hats of Bartholomew Cubbins* (1938), to reinforce the concept of large numbers, addition, and subtraction. Finally, concept or informational books like David Schwartz's *If You Made a Million* (1989), are useful in exploring specific mathematical concepts.

**Counting books**

Since I was working with first graders, I used numerous counting books to review the numerals from 1 to 10 and lay the foundation for addition and subtraction. One of my favorites is *Moja Means One: Swahili Counting Book* by Marjorie Feelings (1971). This book uses African people in native dress to illustrate the numerals from one to ten and also teaches children the Swahili word for each numeral. After I shared this book, I asked several children to stand up in front of the group and we counted boys, girls, children with tennis shoes, children wearing blue, and so on. The students were not only counting, but were also classifying sets of objects. Next, I paired children up, gave them spinners and unifix cubes, and asked one child to spin for a number and the other child to show that number with the unifix cubes.

Another wonderful book I shared was *Anno’s Counting Book* (1975). In this book, Anno has made beautiful, detailed illustrations of seasonal landscapes. Each page contains numerous objects that represent a particular numeral. For instance, on page five, children might find five cows, five houses, five trees, and so on. My students loved this book and read it often. After using this book, I asked students to
pick a number and make their own picture similar to what Anno had done in his book. Pat Hutchins (1982), book, *One Hunter* is also suitable. In this book each page contains several African animals who are hiding from a big game hunter. The pages are numbered consecutively using numerals from one to ten. Children especially like searching for the missing animals. After reading this book, my students made their own counting books using a variety of subjects like animals, cars, and toys.

**Number books**

Although Gailey (1993), recommends number books, I introduced my children to several songs and rhymes to aide their understanding of specific numbers. For example, I played the song, "This Old Man" (Hoffer, et al., 1993) and asked children to act it out. Next, I took out a flannel board and let children come up and make up sets of objects representing different numerals. I also introduced addition and subtraction with the flannel pieces and asked the children to record the problems we made up in their math journals. In addition, finger plays like "Five Little Ducks," "Five Brown Teddies," and "Ten in a Bed" (Hoffer, et al., 1993) are excellent.

**Storybooks**

One storybook my students really enjoyed was *Two Ways to Count to Ten* by Dee (1988), which may be used to introduce alternative counting methods. In the story, King Leopard is looking for an heir to his throne. He holds a spear throwing contest. The first animal who is able to throw his spear into the air and count to ten before it hits the ground will become his heir. After many attempts, an antelope wins by counting by even numbers. My children also came up with other counting methods such as counting by fives.
Another folk tale that I used was The Enormous Turnip (Hoffer, et al., 1993). In this story an old man and his family find a gigantic turnip in the ground and try to pull it out. First the old man tries, then the old man and his wife try, and then the old man, his wife, and his son and so on until all the characters in the story are needed to pull the turnip out. After sharing this story, I divided students into small groups and gave each student a card with a character's name on it. I played a tape of the story and asked students to act it out. Next, we talked about how the story begins with one character and with each attempt to pull up the turnip a new character is added. With this story, my students were learning about adding one more to a set. In this lesson I incorporated literature, music, drama, and math.

Concept books
According to Gailey (1993), concept books have interesting formats and convey excitement in exploring mathematical ideas. One book that I used to teach the concept of large numbers was Schwartz's, How Much Is a Million? (1985). I had been working on place value with my students when I introduced this book to them. It stimulated a nice discussion and children were able to share their experiences with large numbers.

Another concept book that works well with primary children is Eric Carle's, The Grouchy Ladybug (1977). I used this book when I was teaching time to my students. My children enjoyed the story so much that we began a mini-unit on ladybugs. The children also dramatized the story and made a big book. Eating Fractions by Bruce McMillan (1991), another excellent book, is useful when introducing the concept of fractions. This book has photographs of real children manipulating food to show different fractions. Since the text is simple, emergent readers enjoy reading this book again and
again. After reading the story, I encouraged my students to make their own fractions and eat them.

**Benefits and cautions**

One benefit I found when using literature in mathematics was the affect on reading. While reading performance and attitude toward reading were not measured, observations of my students lead me to believe that using literature in mathematics enhanced reading. My children were often found in corners and under tables reading books on a range of topics. Their attitude toward reading was wonderful!

The National Council of Teachers of Mathematics (1989), is recommending great changes in the way mathematics is taught. Inclusion of literature is one change that enables a more authentic approach to math. Mathematics can be easily integrated into all aspects of the curriculum (Whitin and Wilde, 1992). It is everywhere in our daily lives, and we need to draw children's attention to it. "Mathematics and language skills develop together as students listen, read, write, and talk about mathematical ideas" (Gaily, 1993). Literature can also relieve "math anxiety" (Whitin and Wilde, 1992, p. 9). Most children and even adults enjoy listening to stories. This is a very nonthreatening experience. With literature, a teacher is able to convey a mathematical concept in an easy, relaxed manner and follow the story with a discussion. Children learn about math without being aware of it. They are not asked to master algorithms in isolation.

According to Eisner (cited in Whitin and Wilde, 1992, p. 14), scientists and mathematicians are artists; like painters and sculptors, they are involved in the process of form making. All things that are made have form, whether they are paintings and music or taxonomies, theories, frameworks, and conceptual systems. When they are well made, they possess
aesthetic properties. Children's literature adds an aesthetic dimension to mathematical learning (Whitin and Wilde, 1992). Numerous children's books, poems, and rhymes may be used to teach mathematics. Children enjoy being read to or sung to and they love rhythm. Children's books not only enhance mathematics, but also reinforce reading and writing (Gailey, 1993). Through literature, the teacher can establish the authenticity of mathematics events. Math is part of everyday life; therefore its understanding is one key to functioning in the world. This literature link enhances motivation and opens students eyes to their lives. In addition, the stories provide models for students to compose stories of their own related to mathematical events.

A caution for teachers is not to impose mathematics on a piece of literature. When using literature to teach a concept, "mathematics should flow from and be a natural part of the book" (Griffith and Clyne, 1991). Educators also need to be aware of the developmental levels of students. He or she should provide some open-ended activities that invite children to make their own investigations and decisions (Griffith and Clyne, 1991). In a child-centered classroom this happens naturally.

Last, teachers need to establish a classroom that promotes literacy and invites communication in all areas of the curriculum (Kliman, 1993). Since many children come to school without rich literacy experiences, teachers must carefully construct print rich environments that nurture budding literacy and at the same time build on rich foundations some children have established (Taylor, 1986). One way to make mathematics important and part of a rich literacy environment is to create a special mathematics book corner where children may read and/or listen to stories that enhance mathematics (Gailey, 1993). In the spirit of integration, many of
these books might be used with flannel stories, listening centers, or with extension activities like roll stories, murals, mobiles, art projects, chalk talks, and dioramas. Connections between mathematics and literature are limitless. Let your imagination guide you.

References

Gwyn E. Lightsey is a teacher at Seventy Fourth Street Elementary School of Pinellas County, in St. Petersburg Florida.
The fourth-grade classroom brims with movement and noise. One group of students — Angel, Cheryl, Qwatwana, Lee P., Christy, and Paul — sit at a table formed by pushing desks together. The group brainstorms with the professor the title and content of their story about Iktomi the Trickster. They ultimately decide to call their story *Iktomi and the Blanket*. The story begins as Paul Goble suggests in his retelling of *Iktomi and the Boulder*, "Iktomi was walking along." By the end of the day, they have written a first draft of their story.

In other parts of the room, students weave sinew into a web for the center of the Dream Catcher, decorate wooden beads, and string the beads with shells and feathers to form the fringe for the sculpture. While they are working, the artist provides an explanation of symbolic meanings for each material used. These children, students in Marcia Kauffman's fourth-grade class, are using the media of art and
literature to understand a culture other than their own, to develop an appreciation for the art of that culture, and to refine their ability to read and write.

**Integrating art and literature with cultural knowledge**

All teachers are interested in helping their students become more proficient learners. To reach this end, they teach a variety of instructional strategies; provide a wide range of materials; and establish a climate where learning styles are acknowledged, children are allowed to take risks, and writing and reading are encouraged. Yet, some of these students see the world through ethnocentric eyes; view art as creating pumpkins in October or hearts in February; and know isolated facts, but read and write below their ability levels. How can this happen? Perhaps the answer lies in the inability of teachers to capitalize upon a primary strength that students possess, their knowledge of themselves and their culture, and to fail to make connections between this understanding and new knowledge. By studying the art and literature of a culture, however, students will be able to build a bridge between knowledge of self and knowledge of others; see the arts as a living voice of cultures; and improve their ability to read and write.

**Importance of culture to learning**

Brown (1963) defines culture as the accepted and patterned ways of behavior of a given people. It includes their language, value systems, socialization patterns, nonverbal systems, as well as the physical articles they make: clothing, shelter, tools, weapons, implements, and utensils. Gaining knowledge of one's own culture occurs through both formal and informal activities which allow a person to become a participant in the culture.
Knowledge of culture affects both how people view the world and how they assign meaning to what they learn. Research shows that this knowledge has a profound effect upon how well people understand what they read (Anderson and Barnitz, 1984; Erwin, 1993; Kintsch and Green, 1978; Rumelhart, 1980; Steffensen, Joag-Dev & Anderson, 1978). This complex set of learned responses enables persons to understand and respond to nuances of meaning. In a sense, it allows them to bring a part of themselves to the process.

Knowledge of one's own culture can be viewed from a micro-perspective. It helps persons to know themselves better; it grounds them in the reality of who and what they are; and it affects how they gain knowledge of the world. Banks (1994) suggests that ethnic studies should first help people acquire an understanding of their own cultural heritage before moving to an understanding of cultural differences.

In contrast, knowledge of other cultures can be viewed from a macro-perspective. It allows persons to move from an understanding of self to an understanding of others. If students are allowed to celebrate cultural differences, encouraged to respect these differences, and provided opportunities to recognize all cultures' unique contributions, they can become tolerant and compassionate world citizens (Allen, 1986), and learn to thrive in a rapidly changing, diverse world (Banks, 1994). In her book, Planning and Organizing for Multicultural Instruction (1983), Gwendolyn Baker states that because people of the world are bound together, survival depends on how well they live together with understanding and respect. Whether to help students become worldly wise or to help them merely to survive, knowledge is at the heart of cultural understanding (Purves, Rogers and Soter, 1990). Scarcella (1990) suggests that an understanding of the culture of others can be gained by providing experiences which relate to a wide range of cultural groups.
Importance of art and literature in gaining cultural knowledge

Because art is an integral part of every culture, it is difficult to teach important aspects of culture without teaching the art (Maquet, 1986). In many cultures art is so embedded in everyday life that there is no separate word for "art." In these cultures, no distinction is made between creating artistic and useful items. Yet in our society, anything practical or useful is not considered art (Embers, 1993). Visual symbols often have a strong meaning to a culture that cannot be conveyed by words alone. By approaching a culture through its visual and symbolic attributes, students gain understanding of non-verbal and value systems. Through the process of recreating some of the arts of a culture, students connect in a personal way with non-verbal feelings and values of others. As the tactile-kinesthetic approach to instruction has shown, when things learned become tangible, touchable, they are recalled (Hewitt, 1977). If given appropriate instructional opportunities, students may well carry within themselves forever the memory of the smell of the sage and the feel of the sinew.

Often a vitality is missing in the approaches used to teach about other cultures. Hamblen (1986) suggests that teachers incorporate the study of a people's art, containing basic life-sustaining activities which are themes in art expressions around the world, into cultural studies. Art mirrors how a culture reacts to fear, security, battle, beauty, or the gods. It teaches how a society marks the importance of meaning of individuals, activities, and environments. Particularly for children of this generation, everything moves at a rapid pace. The world often appears frantic, unconnected, constantly changing. Study of the arts is a vehicle for helping students see that there is a continuity of symbols, of themes, of needs that link cultures together through time. Learning
the crafts of a culture provides a tactile approach to the values that endure, are repeated, have continuing meaning, and have a place in daily lives. Anthropologists now tell us that despite the many differences, all cultures of the world share a number of common features called cultural universals. Each has developed solutions to the problems facing all human societies (Ferraro, Trevathan, and Levy, 1994).

Children's literature is also a powerful medium for understanding the world (Diakiw, 1990). The importance of literature in diversity education cannot be overemphasized (Allen, 1986). The view of the world presented in stories from other cultural groups contributes to a child's developing world view and provides a link to understanding. Norton and others (1981) indicate that attitudes toward other cultures can be improved if multicultural books and activities are integrated into the curriculum. Literature provides a connection to oral history, the method used by many cultures to transmit their value system from generation to generation.

Because both art and writing are visually dependent, can be viewed as alternative communication systems (Harste, Woodward, and Burke, 1984), and use the same critical thinking and decision-making brain power, there is a parallel to teaching children to draw and teaching them to read and write (Alejandro, 1994). Both art and literature help people free their imaginations, express their emotions and thoughts, and order their worlds (Purves, 1990).

The purpose of this article is to describe the development and teaching of an integrated thematic unit which provides opportunities for students to gain understanding of a culture other than their own and to apply this new knowledge through writing and art.
Integrating art, literature, and culture in a fourth-grade classroom

In the summer of 1993, as part of a university- and community cultural council-sponsored summer program for fifth and sixth-grade youth, we began exploring the idea of writing a thematic unit about the Sioux. Our goal was to help students be a part of the unending circle described by Thom (1992) in his book *Becoming Brave*.

*In the Indian world, all aspects of a man's direction in life are passed from person to person and generation to generation through constant, detailed, oral history and repeated ritual. An unending circle (p. 3, pages unnumbered).*

Recognizing the difficulty of teaching about another culture, we chose to use art and literature as our interpreters — helping us to cross the cultural boundary to the study of the Sioux. These native speakers, the literature and the art, helped convey to the children a personal feeling for cultural diversity. The art medium we chose for the unit was the Dream Catcher. This symbolic sculpture exemplifies art's place in the lives of the Sioux people. It functions as a part of the child's cradleboard and symbolically provides a means of protecting the child from a night's bad dreams. The literature we used was Paul Goble's trickster tale of *Iktomi and the Boulder* (1988). To the Sioux, Iktomi is held responsible for all irrational and chaotic aspects of creation, such as floods and droughts (Goble, 1988).

The unit was designed to accomplish six major objectives. The students would have the opportunity to:

1. Develop an understanding and appreciation of the Native American culture of the Sioux Indians;
2. Secure an understanding of the structure, language, and content of Iktomi and the Boulder retold by Paul Goble;

3. Analyze the story and relate that knowledge of the book to their understanding of the culture;

4. Use the above information to create a piece of Native American art that mirrors the environment of the Plain Indians;

5. Create a trickster story in the style and form of the Iktomi tales;

6. Understand the difference between the Native American symbols and the thoughts for which they stand.

In planning the instructional sequence for the unit, we used both the criteria of Multicultural Discipline-based Art Education (Bongiorni, Cummings, and Fitzgerald, 1991), emphasizing four disciplines of art: art history, art criticism, art production, and aesthetics, and Bloom's Taxonomy of Cognitive Objectives. The instructional sequence incorporated visuals, explanation, and discussion to develop knowledge and comprehension of cultural content (art history), text structure, and author's style. These understandings were then applied to the making of the Dream Catcher (art production) and the writing of the story. This process of creating their own versions of Sioux art and literature also required the students to analyze the information (art criticism) about the Sioux culture and synthesize this new information with their understanding of their own culture. Again through class discussions, self evaluation (aesthetics) was encouraged.

After seeing the extraordinary writing and art these children produced in the summer, we taught the unit in Marcia Kauffman's fourth-grade classroom at O'Connor Elementary School in Victoria, Texas in March of 1994. O'Connor
Elementary serves 672 students in grades Pre-K through fifth. The changing campus demographics reflect a rapidly growing minority population. Testing on the Texas Assessment of Academic Skills during the spring of 1993 showed that only 19% of that year's fourth-grade students were meeting minimum expectations. The activities from that experience are outlined.

**FIGURE 1**

*Comparison of Bloom's Taxonomy to MDBAE*

**Bloom's Taxonomy**

- Knowledge
- Comprehension
- Application
- Analysis
- Synthesis
- Evaluation

**Multicultural Discipline-based Art Education**

**Activity one.** We began with a whole-group KWL activity. We asked the students what they already knew about the Sioux. Earlier in the year, they had read a story in their basal reader about the Plains Indians and knew that the Sioux lived in tepees and hunted buffalo. We asked them what they
wanted to know about the Sioux and they told us that they wanted to know about the people's everyday life.

Activity two. After stating objective one (The students will develop an understanding and appreciation of the Native American culture of the Sioux Indians.), which provided an advanced organizer for a discussion of the culture, we discussed with the students eight critical concepts about the culture:

1. Plains Indian tribes including the Sioux moved to the grasslands from other areas between 1300 and 1800. With this move, their lives changed.

2. The Plains Indians were often referred to as People of the Horse.

3. The buffalo was important to the Sioux in many ways.

4. The tepee was an excellent structure for the Sioux.

5. Art was a bond of cultural unity throughout the grasslands, and is today an integral part of the Sioux culture.

6. The pipe is the most powerful symbol of the whole relationship of human beings to the earth and sky.

7. The warbonnet is a sign of leadership and derives much of its power from the legend of the Eagle.

8. For the Plains Indians, symbols are a part of nature, a part of themselves.

To facilitate the discussion, we showed and discussed colored transparencies related to each of the concepts. These transparencies provided the students with both symbolic and representational pictures of the Sioux and their culture. These transparencies includes a tribal map of the Plains;
buffalo hunt; painted horses and men; pictures of bags, pipes, men's and women's clothing (showing beadwork and quillwork); horses with travois; cradleboards; shields; painted tepees; warbonnets; and dances. In addition to the pictures, graphic organizers were shown and discussed: timeline of the coming of the horse; semantic map of the use of the buffalo; transparency of Native American symbols.

**FIGURE 2**
*Uses of Buffalo*

![Diagram of uses of buffalo](image)

Activity three. To facilitate recall of information from activity two, we reviewed these points with the students:
- Where the Sioux Indians lived and what type of life they led;
- The relationship of the Sioux to animals such as the buffalo and the horse;
We prompted the students when necessary, and displayed a sample of earlier shown transparencies to reinforce learning.

Activity four. We began this activity with a statement of objective two as an advanced organizer: (You will have the opportunity to secure an understanding of the structure, language, and content of the story of Iktomi and the Boulder by Paul Goble). We clarified for the students what structure and content meant, and explained that we wanted them to understand not only the story, but the way the author retold it.

Without showing the pictures, we read the story to the class. One of us read the basic story of Iktomi, while the other provided the sarcastic remarks that were attributed to the group listening to the storyteller. We asked the students to listen carefully to the story, because we would ask them questions about it later. We then asked the following questions and recorded the students answers on a blank semantic map:

1. How does the story begin?
2. How does Iktomi look? How does he act? What is his relationship to nature? What does he call the boulder and the animals? How do others treat Iktomi?
3. Why are there two parts to the story? Who is the reader/teller of the first part? Who is the reader/teller of part two?

4. How does the story end? Does it tell something that you did not know before? What is that message called?

Using information provided by Paul Goble in the introduction to Iktomi and the Boulder (1988), we described Iktomi to the students.

1. Iktomi is a trickster character of the Great Plains, who is very clever, often has magical powers, and is a mischief-maker.
2. He is forever trying to get the better of others, but usually is fooled himself.

3. In older stories of the Plains Indians, the Creator entrusts Iktomi with much of Creation. He is credited with the mistakes of Creation such as earthquakes, floods, disease, etc.

4. There is no correct version of these stories, but the storyteller kept to certain familiar themes and wove variations around them.

The stories reflect the following characteristics:
- the stories had a moral, but no sermon;
- they were written in informal language;
- all began the same way, "Iktomi was walking along ...";
- they suggested from the start that Iktomi was idle, aimless, with nothing better to do (Goble, 1988).

Again using the semantic map, we asked the students to modify their earlier held ideas based upon this new information. We reread the story and asked the students to supply their own sarcastic remarks. This was difficult for them at first.

Activity five. We stated objective three for the students: (You will be able to analyze the story and relate that knowledge of the book to your understanding of the Sioux culture); showed transparencies of illustrations from the book (p. 4 — tepee, p. 6 — Iktomi in best clothes, p. 11 — Iktomi smoking a pipe, p. 31 — Iktomi and the boulder, p. 23 — the buffalo, p. 30 — bats breaking the boulder, p. 32 — Iktomi walking away); and helped the students relate the information provided in these illustrations to what they had learned about the Sioux.
The students were able to make the following inferences:

- Iktomi is a modern man because on page 4 there is a sign saying "Back Tomorrow." Early Sioux did not have a written language, they passed down information by telling stories. The tepee was painted with both pictures (man's art) and symbols (woman's art).

- Clothes like these are only worn for special ceremonies and are heavy and hot. Iktomi should not have worn the warbonnet. The eagle feathers are given for generosity or bravery. He is too young, and he does not seem like a brave man.

- The pipe must be important to Iktomi. When he is tired, he sits under the rock and smokes to give him strength.

- Doesn't Iktomi know that the rock is important (a spirit), when he tries to trick it? He is going to get into trouble.

- Iktomi uses the buffalo. He should be good to the buffalo because the buffalo gives him most things he needs.

- Iktomi uses the bats to break the boulder. He does not appreciate what they do for him. He thinks only of himself.

- Iktomi is a modern man. He is wearing a baseball cap and socks. He is still the same, he has not learned a lesson.

**Activity six.** After stating objective four: (You will use the information you have learned to create a piece of Native American art that mirrors the environment of the Plains Indians), we moved from the voice of literature to the voice of art. On this day we broke the class into two groups — one making the Dream Catcher and one writing group stories.
It is believed by the "first men" people that dreams, both good and bad, descended from the dark night sky. One day, in an effort to protect her child from the night's bad dreams, an Ojibway woman, relying on the skill of spider people, constructed the dream catcher. Attached to her baby's cradleboard, the dream catcher captured the bad dreams in the web and held them there until they evaporated in the first rays of the morning sun. Good dreams simply slipped through the center hole in the web to the one sleeping beneath.

Symbolism of Some of the Materials and Techniques Used in the Dream Catcher:

- Willow - tree of life
- Sage - youth, drives out evil spirits
- Pine needles - wealth, money, purification
- Rocks - Stone God - oldest spirit
- Fringe - to erase your trail
- Red - sunset, thunder, blood, earth
- Green - healing, fertility
- Numbers - Four - Directions: north, south, east, west
  - Seven - seven council fires of Sioux Nation
- Eagle feathers - bravery, generosity
- Other feathers - homage to birds - used in Sacred Medicine Bag
- Own feather - ghost
- Circle - unending circle of life and nature
- Rosemary - healing, love, protection
- Fur - homage to the animal powers - used in Sacred Medicine Bag
- Shells - increase strength
- Black - victory, night
- White - glare of sun at zenith, snow
- Orange - strength, attraction
For the first group (approximately two-thirds of the class), we told the story of the Chippewas or Ojibway Dream Catcher and explained much about the symbolism of each natural material that would be woven into it.

At this point the feathers, beads, leather, fur, and sinew were carefully arranged in baskets and on rugs. By the time the Dream Catcher was well under way, there were beads under the table, feathers in the boys' hair and fur on their shoulders. They also were wearing the rugs. We asked for two or three students who liked to sew or were patient to weave the web.

Other students painted beads, clipped feathers and strung shells on sinew for the fringe that would later be hung from the willow hoop. As they worked with natural materials, they began to see how different it is to attach anything without a glue gun or Magic tape. All feathers and fur need to be tied, strung or notched. The fresh herbs and grasses smelled wonderful wrapped into bundles and made the classroom smell as fragrant as the Plains. We talked as we wove about the symbolism of the materials, urging the children to be careful and finish their work in a beautiful and neat manner. We tried to instill in them the knowledge that the real beauty of this sculpture is in the ideas, materials, and decoration each group brings to its own creation. We rotated groups during the day so all children had time with each activity.

Activity seven. At the same time, the other third of the class began work on its own Iktomi story. The activity began as before with a restatement of an objective: (You will also create a trickster story in the style and form of the Iktomi tales). To do this, we asked the group to brainstorm a title for the story and write the first draft which consisted of only
Iktomi's adventure. For this activity, we served as scribe, taking down the dictation and retyping the draft to be edited the next day. This group rotated and we repeated the process described.

The next day, we distributed clean typed copies of each group's first draft story. Then we asked each group to read its story and make changes in the content itself. Again we served as scribe. After this process was completed, each group added its own sarcastic comments to the story. This step was especially enjoyable for the fourth-graders once they knew that they were not going to get into trouble for saying such things in class. Finally, each group added the moral to its story. The groups then checked the stories for errors. At the beginning of the last day, we passed out books containing all three of the stories to each student in the class.

Assessment of student learning

To evaluate the students' understanding of the information provided in the unit, the following activities were completed.

Developing an understanding of another culture. On the last day, we finished the "L" portion of the KWL Chart we began on the first day. In doing so, we found that the students learned that within the Sioux tribe, women and men approach art in different ways. Women make the tepees, but men paint the symbols on them. Men paint pictures of animals and objects while women paint geometric shapes which stand for objects and ideas. Women make the pipe stems, yet men carve designs on the bowl. They remembered that pictographs tell stories. The students also learned at least two characteristics of Iktomi "trickster" stories. They remembered that all of the Iktomi stories start alike, and that the stories have a moral to explain why some things happen. In terms of
the everyday life of the Sioux, they remembered that women take care of babies and carry them in a cradleboard, and that the Dream Catcher is powerful and keeps bad dreams from the child. They also knew that the Sioux view life as a circle like the hoop of the Dream Catcher.

**Appreciating art of another culture.** The evaluation of Objective Six (Understanding the difference between the Native American symbols and the thoughts for which they stand) was accomplished subjectively. By observing the children's behavior, we found that they applied their understanding of the art in many ways. Little Spider designs (Love Charms) began to appear on book covers and notes passed to best friends; boys clipped feathers for bravery; and girls wove fur and shells in their hair. As we played tapes of Sioux flute music throughout the unit, we noticed that the students would consistently restart a finished tape.

While the children came to understand something about universal meaning of symbols, they got somewhat carried away trying to use all the beads, shells, and feathers, making necklaces for everyone and surreptitiously taping feathers together when frustrated with wrapping and tying. It was frustrating to several of the children not to make a Dream Catcher to take home and hang over their own beds. It became evident by their discussion and behavior, that art can sometimes communicate meaning by transcending time, culture and traditional symbol systems (Bongiorni, Cummings, and Fitzgerald, 1991). They knew that Native American art was made by the hands of the people. This idea of originality of concept, creativity of design, and joy of craftsmanship appealed directly to them. We found that creating the Dream Catcher and Iktomi stories became an act of homage for these children who were inspired by another culture's works.
We found that each of the groups wrote a trickster story which began in the traditional fashion with "Iktomi is walking along ..."; used informal language; provided an appropriate moral; and developed secondary characters (bats, buffalo, eagles, horses, cheetah, ants) which were suitable for this type of writing. While all three groups saw Iktomi as a liar, only two of the groups depicted the protagonist as a trickster. In one story he was pictured as a weak, ineffective, afraid victim. In all three stories he survived in the end; although in one story he was not aware that people were laughing at him. Students in two of the groups seemed to enjoy very much writing the sarcastic remarks for the audience. The third group produced a story that was weak in several aspects. This group used sarcasm sparingly, developed a primary character without many of Iktomi's traits (except lying), and failed to provide a coherent plot sequence. While the stories written by the three groups varied, knowledge of the Sioux culture was apparent in all three stories. The following examples from the three stories reflect the students' understanding of Native American reverence for nature:

**Story I:** The rabbit called Iktomi "Older Brother" and Iktomi called the rabbit "Little Friend." The eagle picked up Iktomi and carried him away from harm.

**Story II:** Iktomi called the buffalo and bats "Little Brother." The horse rescued Iktomi from under the rock.

**Story III:** Iktomi called the magic blanket "Brother Blanket" and the blanket saved him from the ants.

The concept of magic powers was also present in all three stories:
Story I: Iktomi met a magical, ugly, black rabbit who later turned into a cheetah.

Story II: The rock was angry because Iktomi called him names.

Story III: Iktomi's blanket came alive and saved him from the ants.

If time had permitted, we would have asked the groups to develop further their understandings by providing opportunities for them to share their stories with the others, keep a notebook of vocabulary words, pictures, and symbols; draw cover illustrations for the stories, create personal amulets with their own private message inside, discuss the concept of Folk Art and choose other cultures they might study in a similar way.

Conclusion

The purpose of this article was two-fold. First, we described the development and teaching of an integrated thematic unit about the Native American culture of the Sioux. Because none of the children in the class were Native American, this unit exposed the students to a culture other than their own. It showed the students in a tangible way how the Sioux lived and what they believed. The unit was structured to reflect the levels of Bloom's Taxonomy of Cognitive Objectives as well as the elements of Multicultural Discipline-based Art Education.

The second purpose was to show how the students applied this new knowledge by creating art and literature appropriate for the culture. The art and literature chosen were the Dream Catcher and the Iktomi story. Because we, the teachers and the students, were not Native American, these two media became our native speakers, the informers for the culture. Because we allowed the voices of the literature and the art to
speak for us, we were able to build bridges between the Sioux culture and our own. It is our feeling that these voices infused the experiences with a spark, a life, that no textbook could contain. They assisted us in crossing boundaries and conveyed to us, teacher and student alike, a personal feeling for their culture. This article reflects a strong belief in the words of Ernest Boyer (1985),

We feel that now, more than ever, all students need to see clearly, to hear acutely and feel sensitively. The language of the arts is no longer simply desirable, but is essential if we are to convey adequately our deepest feelings and survive with civility and joy.

It is a message that all children should be allowed to hear and taught to follow.

References


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