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ABSTRACT

This document describes a balanced and comprehensive approach to improve the reading and mathematics performance of Louisiana students in kindergarten through third grade. Sections of the paper address the focus on prevention, intervention, and remediation; the need in Louisiana for a K-3 reading and mathematics initiative; determining the effectiveness of the K-3 Reading and Math Initiative; reading and mathematics in the early years; findings and recommendations from "Preventing Reading Difficulties in Young Children; mathematical development in the early years; determining the components of an effective reading and math initiative in grades K-3 (whose components are the Louisiana Content Standards, a balanced approach, interventions, learning environment, family and community partnerships, classroom-level assessment, and staff development). Contains 55 references, 17 math references, and lists of 28 educational web sites and 9 periodicals. (RS)

K-3 Reading and Math Initiative

Revised 1999

Bulletin 1967

Louisiana Department of Education
Cecil J. Picard, State Superintendent of Education

"Reaching for Results"

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Overview

During the 1997 Regular Session of the Louisiana Legislature, the Louisiana Department of Education was allocated $30 million dollars to develop a balanced and comprehensive approach to improve the reading and mathematics performance of students in kindergarten through third grade. An additional $40 million dollars was allocated during the 1999 Regular Session to continue the Louisiana K-3 Reading and Math Initiative. Through this program, the Department of Education defined components of effective reading and math initiatives. The goal of the program is to improve the reading and math skills of Louisiana public school students in kindergarten through third grade. **The target population for this initiative is kindergarten through third grade students who are at risk of experiencing difficulty in reading and/or mathematics.**

Focus on Prevention, Intervention and Remediation

The first time children are taught, it should be done so with knowledge of the most current research of how children learn best. Many refer to this approach as "good first teaching." According to Dr. Reid Lyon of the National Institute of Child Health and Human Development..... for 90% to 95% of poor readers, prevention and early intervention programs that combine instruction in phoneme awareness, phonics, fluency development, and reading comprehension strategies, provided by well-trained teachers, can increase reading skills to average reading levels. However, we have also learned that if we delay intervention until nine-years-of age, (the time that most children with reading difficulties receive services), approximately 75% of the children will continue to have difficulties learning to read throughout high school."

Excellent instruction is a major prevention strategy. This excellent instruction requires teachers who are well prepared, highly knowledgeable, and receive ongoing support (National Research Council, 1998). As researchers learn more and more about how young children develop reading and math skills, that information must be shared with teachers. Teachers, through comprehensive and ongoing staff development, must learn effective strategies for reaching children with diverse learning styles and special needs.

Yet, despite all of the best practices being implemented, there are some children that still experience difficulty in learning to read and to develop mathematical understandings. These children must be identified early and be provided proven intervention and remediation programs or strategies so that they can perform on grade level with their peers.

The Need in Louisiana for a K-3 Reading and Mathematics Initiative

Retention in Louisiana

In the United States, there is an estimated retention rate of 6% (Shepard and Smith, 1990). In Louisiana, children in grades K-3 are being retained at alarming rates. According to Louisiana Department of Education, during the 1995-96 school year,

- 5,694 (8.7%) were retained in kindergarten
- 7,438 (11%) were retained in the first grade,
- 3,460 (5.4%) were retained in the second grade, and
- 2,890 (4.4% were retained in the third grade.

In all, 19,482 (7.4%) children in grades K-3 were retained in Louisiana during the 1995-96 school year. It can be assumed that most of the children retained experienced difficulty in either reading and/or mathematics. Retention in grades K-3 costs Louisiana taxpayers over $87 million dollars, considering that educating a child through both state and local funding is approximately $4,500 per student per year.

There is probably no other single educational practice that can match retention with such a consistently demonstrated negative impact on students (National Education Association, 1959; Otto, 1932; Smith and Shepard, 1987). In an analysis of sixty-three studies on retention, Holmes (1989) found that the students who were retained had achievement levels significantly below the levels found for promoted students. These researchers contend that academic achievement and self-concept of retained students are negatively affected and that those children are far more likely to drop out of school than students who were never retained. According to T*he Center for Educational Policy*, for every child who is retained once during his school career, there is a 50% chance that the child will drop out. If a child is retained twice during his educational career, then there is a 90% chance that he will drop out *(CPRE Policy Briefs, 1990).*

If a child is unable to break the code in one year, will repeating a grade using the same strategies and programs a second year ensure success? Social promotion, however, is not the answer either. When children are socially promoted, they usually remain among the lowest-achieving members of the group (Allington and McGill-Frazen, 1991). One goal of this initiative is to identify children in grades K-3 experiencing difficulty and to intervene with strategies that will address their particular needs and leaming styles so that retention will be used only as a last resort.

* This is the only retention rate data currently available. More up-to-date data will be available during the 1999-2000 school year.

Act 450: Reading Abilities of Louisiana's Second and Third Grade Students

During the 1997 Regular Session of the Louisiana Legislature, Act 450 was passed which required each second and third grade teacher to report the number of students reading below grade level during the first thirty days of school.

Based on the analysis of the data provided by classroom teachers, using the statewide assessment, the *Developmental Reading Assessment* the findings are noted as follows:

Fall 1998

1. Of the 58, 615 second graders assessed
   - 33,035 (56.36%) were reading below grade level,
   - 17,309 (29.53%) were reading on grade level, and
   - 8,270 (14.11%) were reading above grade level.

2. Of the 56,807 third graders assessed
   - 19, 869 (34.48%) were reading below grade level,
   - 26,346 (45.72%) were reading on grade level, and
   - 11,409 (19.80%) were reading above grade level.

3. Of the 115,499 second and third graders assessed
   - 52,904 (45.51%) were reading below grade level,
   - 43,655 (37.55%) were reading on grade level, and
   - 19,679 (16.94 %) were reading above grade level.

Note: Numbers vary due to rounding

Fall 1998 Reading Levels of Louisiana's Second and Third Grade Students

Below Grade Level (40.74%)	On Grade Level (39.65%)	Above Grade Level (19.61%)

In summary, 54.49% of the 63,334 second and third graders who were assessed are reading on or above grade level.

Louisiana Students' Performance on Standardized Tests

NAEP

The National Assessment of Educational Progress (NAEP) 1998 Reading Assessment was administered to a random sampling of Louisiana's fourth grade students in the area of reading. NAEP is a Congressionally mandated assessment administered by the National Center for Education Statistics, U.S. Department of Education. It is the nations only ongoing, comparable and representative assessment of student achievement. The framework of the NAEP 1994 Reading Assessment considers students' performance in situations that involve reading different kinds of materials for the following purposes:

- reading for literary experience,
- reading to gain information, and
- reading to perform a task.

NAEP reports progress in three ranges of achievement.

- *Basic* This level denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade level.

  On the NAEP 1998 Reading Assessment, 52% of Louisiana's fourth grade students tested performed below the basic achievement level. Forty-Eight percent (48%) achieved at or above the basic achievement level.

- *Proficient* This level represents solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.

  On the 1998 NAEP Assessment, 16% of Louisiana's fourth grade students scored at or above the proficient level.

- *Advanced* This level signifies superior performance.

  On the NAEP 1998 Reading Assessment, 3% of Louisiana's fourth grade students scored at or above the advanced level.

Louisiana is now tied with Mississippi at 36th out of 39 states participating at the 4th grade.

Statewide Criterion-Referenced Test

Louisiana's fourth grade students are required to take a criterion-referenced test often referred to as the "LEAP 21". "LEAP 21" is an acronym for *Louisiana Educational Assessment Program* for the 21st Century. The purpose of the LEAP 21 is to measure whether or not students have attained the skills and knowledge of the state standards in language arts and mathematics.

During the 1998-99 school year,

- 79% of Louisiana' s fourth grade students were approaching basic or above in language arts, and
- 65% of Louisiana's fourth grade students were approaching basic or above in mathematics.

Statewide Norm-Referenced Test

In addition, Louisiana third grade students were administered the Iowa Test of Basic Skills (ITBS). The ITBS which is a norm-referenced test. The purpose of a norm-referenced test is not to see whether children have mastered the curricula they are being taught, but rather to compare the performance of one group of students with students from all over the country.

Norm-referenced scores are reported in *percentile rank of average standard score*. Used as a representation of test performance of a group of students, the percentile rank of average standard score shows how the typical student of the group compares to the typical student in the nationwide norming group that took the ITBS. For example, a percentile rank of 48 for the state means that 48% of the students in the national norm group scored at or below the average of the scores obtained by students tested in the state.

During the 1998-99 school year, the results of the ITBS indicated that

- for Grade 3, the 1999 percentile rank of the average standard score for the state in Total Reading was 42; in Total Language it was 56; and in Total Mathematics it was 47. For the Composite Score, Louisiana's third graders achieved a percentile rank of the average standard score of 45.

Clearly, there is a need to focus our resources and efforts in the area of reading and mathematics in Louisiana.

Determining the Effectiveness of the K-3 Reading and Math Initiative

Evaluation of the effectiveness of the K-3 Reading and Math Initiative at the State level will consist of both short range and a long range activities. The following are a few of the general questions that will be addressed in the evaluation:

- Have at least 75% of the students involved in the K-3 Reading and Math Initiative shown yearly growth and improvement toward reading on or above grade level as evidenced by local assessments as well as a uniform state assessment in reading at first, second and third grade?
- What are the different programs being implemented at the local level?
- What students were targeted in each school/school system? Did school systems direct their funding towards students and schools that were in the greatest need?
- How effective are the various reading and math programs that are being implemented in the local school system as a result of the K-3 Reading and Math Initiative?
- Are students being prepared to meet the *Louisiana Content Standards for English Language Arts* and the *Louisiana Mathematics Frameworks?* Are students being prepared for the highstakes assessment at the fourth grade?

Reading and Mathematics in the Early Years

Literacy Development in the Early Years

Emergent Literacy

When children arrive at school for the first time, they have accumulated anywhere from zero to 2000 hours of literacy experiences. These literacy activities include listening to stories, reciting nursery rhymes, singing, songs, drawing or scribbling on paper, manipulating magnetic letters on the refrigerator, going to the public library for story hour, and recognizing signs, such as *McDonald's*. Curling up in the lap of a parent while a story is read is a favorite activity of most children during these early years. They begin to realize that reading is a pleasurable experience. These children see their parents reading books and magazines for pleasure or information, writing a grocery list, using a telephone directory, working on the computer, and writing a letter to a friend. Children who come from homes where literacy is an important part of their lives learn that reading and writing are important and have a purpose. They learn that print carries a message.

When children step through the classroom door on the first day of school, there is a wide variation in their previous literacy experiences. This gap is narrowed when at-risk children have been given the opportunity to participate in a quality preschool program. In preschool programs across the state, literacy is an integral part of the curriculum. Teachers create a 'print-rich environment', in which children have opportunities to use print in functional ways. Dramatic play areas are filled with magazines, signs, menus, telephone books, and paper and pencils for scribbling shopping lists. Library corners are stocked with a wide assortment of books, including predictable books, information books, counting books, alphabet books, and wordless books. Story time is a part of the daily schedule. There are materials available for children to retell stories using flannel boards and props. They sing songs and play rhyming games. Students dictate stories and watch as the teacher writes down their thoughts and ideas. Teachers and children talk about letters and words in the context of their play. As the teacher reads to the students, the teacher and children engage in conversations about the pictures they see on the pages and often relate the stories to familiar situations. Students can be observed enacting the reading behaviors they have seen: for example, turning pages in a book as they retell a familiar story. At this stage of development, children are often unable to match written words to spoken words.

All children, especially those at risk for reading difficulties, should have access to early childhood environments that promote language and literacy growth and that address reading risk factors in an integrated, rather than isolated fashion. The National Research Council, in *Preventing Reading Difficulties in Young Children,* recommend that the following be included in home and preschool activities:

- adult-child shared book reading that stimulates verbal interactions to enhance language (especially vocabulary) development and knowledge about print concepts,
- activities that direct young children's attention to the phonological structure of spoken words (e.g., games, songs and poems that emphasize rhyming or manipulation of sounds), and
- activities that highlight the relations between print and speech.

As children enter kindergarten, these activities continue as reading and writing develop. They begin to match some spoken words with written words. Children realize that print carries a message as they point to words

and as they retell stories in a book. Most five-year-olds can read their names as well the names of their classmates. Students in kindergarten learn to recognize the letters of the alphabet and most of their sounds and may even recognize some words, but they tend to rely heavily on their memory of a story, picture cues, prior knowledge of context, and their own personal experiences.

As preschool and kindergarten students make rhymes and play with words, they are developing one of the most reliable predictors of future success in leaming to read (Adams, 1990). As they become aware of words and sounds and realize they can manipulate them, they are developing p*honemic awareness.* They become aware through various stages that language is made up of words, that words are made up of syllables, and that syllables are made up of individual sounds or phonemes. Phonemic awareness is developed as a result of continuous exposure to oral and written language in the early years.

Children provided opportunities to experiment with writing in the preschool and kindergarten years are also developing their phonemic awareness. Initially they may write a single letter and say that it represents an entire word. Later, they will add more letters and say the words slowly as they try to hear the sounds as they write.

This section has described a stage of development called *emergent literacy* a term that replaces the notion of "reading readiness." Reading readiness is a term used to describe a discrete set of skills that needed to be mastered before a child was ready to read. Although most of the skills associated with reading readiness are important to literacy learning, emergent literacy assumes that literacy development begins early in life and is ongoing. This development occurs in everyday contexts in the home, school, and community. Emergent literacy acknowledges that reading and writing develop together. Teachers, during the emergent literacy stage of development, are sensitive to children with special needs and capitalize on children's strengths rather than on their weaknesses. Teachers provide a program of instruction based on children's individual needs and their current level of functioning.

Early Reading As children move into the primary years, they begin to show increasing knowledge of print conventions. They make greater use of context for predictions and are more accurate than in the emergent stage. Children in this stage have a basic sight reading vocabulary of functional words and know the relationships between common sounds and letters. Children will typically read slowly and hesitatingly, repeating words and phrases. Unfamiliar texts may be read word-by-word. Readers are beginning to use *decoding strategies* as a way of "breaking the code" of reading. In order to derive meaning from text, children rely on *three cuing systems.* These cuing systems *include graphophonic cues (phonics), semantic cues* (meaning), and *syntactic* cues (structure). By using these three cuing systems, skillful readers cross-check their knowledge of the world around them, the sound-symbol relationships they know, and their ability to see visual similarities and patterns in words.

The role of effective phonics instruction is to help children understand, apply, and learn the alphabetic principle and conventions of written language. Numerous research reports (Adams, 1990; Anderson et al., 1985; Chall, 1967; Johnson & Baumann, 1984; Williams, 1985) suggest that phonics instruction improves beginning reading achievement and also helps children learn to read and write. However, there are children who learn to read early and in such a natural manner that they require little or no direct phonics instruction (Clarke, 1976; Durkin, 1966; Pikulski & Tobin, 1988). For many children, though, the research is clear that early, direct instruction in phonics results in superior reading achievement (Anderson et al., 1985 Chall, 1967).

This research does not conclude, though, that each phonic element is taught in isolation. In order for children to understand and enjoy what is read, they must combine phonics and other decoding strategies. They must have many opportunities to apply the knowledge they are developing about phonics to functional reading and writing (Adams, 1990). In other words, for phonics to be meaningful, it must be learned within the context of reading and writing.

Semantic cues help children answer the question "Does this make sense?" when reading.
Young children take to school concepts and understandings from past experiences. They construct meaning when they relate the information to what they already know. Self-correction when the text does not make sense is an indication of a child's effective use of all three cues. Skillful readers have extensive background of a wide range of topics and related language. Teachers can broaden their students experiential and language base and encourage reading for meaning by involving them in as many real-life experiences as possible. They should discuss experiences to extend the child's understanding and vocabulary. Before reading a story, effective teachers have students recall and share what they know about the topic to build their knowledge of the concepts and vocabulary in the text. In addition, teachers can encourage predictions before and during reading to promote reading for meaning.

Syntactic cues help readers know how language works and how to use information such as sentence structure, word order, function words, and word endings as they read. Patterns of language provide the child with signals to transfer knowledge of oral language to print. If something does not "sound right" while reading, effective readers will use that information and self-correct. To build children's knowledge of how language works, teachers may read aloud to children from a wide variety of literature. It is important to provide time and opportunities for children to read independently, encouraging them to make predictions based on their knowledge of language patterns. In addition, children should be provided opportunities to use language for different purposes: to tell stories, to explain, to persuade, to ask questions, and to give directions.

Reading is the process of constructing meaning from written text. It is an active process involving constant interaction between the mind of the reader and the text (Rosenblatt, 1969). Reading is a complex process requiring the integration and coordination of many related sources of information: context, meaning, structure, and sound/symbol relationships.

Fluent Literacy
Fluent literacy may occur in the later primary years and/or in the following years. Fluent readers begin consciously to set their own purposes for reading. Fluent readers read books for interest and information or because the books are written by favorite authors. These children use strategies of predicting, sampling and confirming; they self-correct miscues quickly, confidently, and independently. During this stage of literacy development, the rate of reading increases, and children prefer to read silently.

Fluent readers can make connections between what they know and understand and what is new. They construct meaning and integrate a range of reading strategies when reading unfamiliar text. Opportunities for reading across the curriculum should be provided. As children become conscious of how they use reading strategies, they gain more control over what they read and move toward higher levels of understanding and critical thinking.

Books used in the fluency stage contain more pages of text and longer, more complex sentences about diverse subjects. Some of the concepts may be abstract and require the reader to make inferences. Illustrations in books tend to enhance, rather than contribute to, the meaning.

Findings and Recommendations on Reading Instruction in Kindergarten Through Third Grade from the National Research Council's Report on Preventing Reading Difficulties in Young Children

Findings on the mechanics of reading: There is converging research support for the proposition that getting started in reading depends critically on mapping the letters and the spellings of words onto the sounds and speech units that they represent. Failure to master word recognition impedes text comprehension.

There is evidence that explicit instruction that directs childrens attention to the phonological structure of oral language and to the connections between phonemes and spellings helps children who have not grasped the alphabetic principle or who do not apply it productively when they encounter unfamiliar printed words. Of course, intensity of instruction should be matched to children's needs. **Children who lack these understandings should be helped to acquire them; those who have grasped the alphabetic principle and can apply it productively should move on to more advanced learning opportunities,**

Findings on comprehension: Several factors have been shown to promote comprehension: vocabulary, including full and precise understanding of the meanings of words; background knowledge about the subject matter, familiarity with semantic and syntactic structures that signal meaningful relationships among the words, appreciation of the writing conventions used to achieve different communicative purposes (e.g., irony, humor) verbal reasoning ability, which permits inferences to be made by reading between the lines; and verbal memory capacity.

Comprehension can be enhanced through instruction focused on concept and vocabulary growth and the syntax and rhetorical structures of written language, as well as through experience gained by reading both independently and interactively in pairs or groups.

Explicit instruction in comprehension strategies has been shown to lead to improvement of reading comprehension (e.g., summarizing the main idea, predicting what text will follow, drawing inferences, discussing the authors communicative intent and choice of wording, and monitoring for misunderstandings).

Conclusions: Analysis of the research literature in reading acquisition leads us to conclude that, in order to prevent reading difficulties, normal instruction in reading needs to focus on the development of two sorts of mastery: word recognition skills and comprehension skills.

Recommendations on the mechanics of reading:

- Kindergarten instruction should be designed to provide practice with the sound structure of words, the recognition and production of letters, knowledge about print concepts, and familiarity with the basic purposes and mechanisms of reading and writing.

- First grade instruction would be designed to provide explicit instruction and practice with sound structures that lead to phonemic awareness, familiarity with spelling-sound correspondence and common spelling conventions and their use in identifying printed words, sight recognition of frequent words, and independent reading, including reading aloud. A wide variety of well-written and engaging texts below the children's frustration level should be provided.

- Instruction for children who have started to read independently, typically second graders and above, should be designed to encourage children to sound out and confirm the identifies of visually unfamiliar words they encounter in the; course of reading meaningful text, recognizing words primarily through attention to their letter-sound relationships. Although context and pictures can be used as a tool to monitor word recognition, children should not be taught to use them to substitute for information provided by the letters in the word.

Because the ability to obtain meaning from print depends so strongly on the development of word recognition accuracy and reading fluency, both of the latter should be regularly assessed in the classroom, permitting timely and effective instructional response where difficulty or delay is apparent

Recommendations on comprehension:

- Kindergarten instruction should be designed to stimulate verbal interaction to instruct vocabulary and encourage talk about books.

- Beginning in the earliest grades, instruction should promote comprehension by actively building linguistic and conceptual knowledge in a rich variety of domains.

- Throughout the early grades, reading curricula should include explicit instruction on strategies such as summarizing the main idea, predicting events and outcomes of upcoming text, drawing inferences and monitoring for coherence and misunderstandings. This instruction can take place while adults read to students or when students read independently.

Recommendations on writing:

Once children learn to write letters, they should be encouraged to write them, use them to begin writing words or parts of words, and use words to begin writing sentences. Instruction should be designed with the understanding that the use of invented spelling is not in conflict with teaching correct spelling. Beginning writing with invented spelling can be helpful for developing understanding of phoneme identity, phoneme segmentation, and sound-spelling relationships. Conventionally correct spelling should be developed through focused instruction and practice. Primary grade children should be expected to spell previously

studied words and spelling patterns correctly in their final writing products. Writing should take place on a daily basis to encourage children to become more comfortable and familiar with it.

Recommendations on reading practices and motivation:

- Throughout the early grades, time, materials, and resources should be provided (a) to support daily independent reading of texts selected to be of particular interest for the individual student, and also beneath the individual student's frustration level, in order to consolidate the students capacity for independent reading and (b) to support daily assisted or supported reading and rereading of texts that are slightly more difficult in wording or in linguistic, rhetorical, or conceptual structure in order to promote advances in the students capacities.

- Throughout the early grades, schools should promote independent reading outside of school by such means as daily at-home reading assignments and expectations, summer reading lists, encouraging parent involvement, and by working with community groups, including public librarians, who share this same goal.

Mathematical Development in the Early Years

Children of different ages learn mathematics in different ways. Even children in the same classroom may be at different levels of mathematical development. As teachers observe children manipulating objects and interacting with each other, they can recognize different stages of development in mathematical concepts and plan appropriately.

Before children enter school, they know many counting words, and they may know that two is more than one; but it will be a while before they understand larger numbers and ideas such as *nine is more than eight and less than ten.* Preschoolers' understanding of number, space, time, size, and other concepts are ruled by perception and depend upon how something looks to them. They believe that a candy bar broken in half is more than a whole candy bar, because it "looks bigger."

Between six and eight years of age, many children begin to reason that twelve things are twelve things, no matter how you group them or arrange them in space. Children in this age group have developed conservation of number; that is, they are able to separate number from length, and they tend not to confuse the two concepts (Piaget, 1948).

Preschoolers' understanding of mathematical concepts grows as they play with objects and learn. As a preschooler attempts to make a bridge with blocks, his first try might be to stand up two blocks. Initially he may stand two blocks of unequal length and try to place a connecting block on top. After further play, he discovers that he needs two blocks of the same size. This experimental play is an important step in understanding what it means to measure and estimate and will be a foundation for his future mathematical leaning.

In the primary years, children need many opportunities to develop math concepts through manipulating concrete objects. As children learn how to group, classify, sort, graph, and seriate, they begin to construct mental

relationships. Concrete experiences help children to develop logical mathematical thinking that form the basis for understanding the meaning of abstract symbols such as 3 + 5 = 8.

With these ideas in mind, the National Council of Teachers of Mathematics (NCTM) advocates the following five overall curricular goals for K-4 students:

- to learn to value mathematics;
- to become confident in their own ability;
- to become mathematical problem solvers;
- to learn to communicate mathematically; and
- to learn to reason mathematically.

A mathematics curriculum for K-4 should be one that is developmentally appropriate and one that builds on children's intuitive insights and language in selecting and teaching mathematical ideas and skills. A developmentally appropriate curriculum incorporates real-world contexts, children's experiences, and children's language in developing ideas. It provides repeated contact with important ideas in varying contexts throughout the year.

Children in grades K-4 should be actively involved in doing mathematics using a variety of materials and supplies. Teachers should strive to help students understand and interpret their world and solve problems related to it. By applying mathematics, K-4 students learn to appreciate its power.

Defining The Components of an Effective Reading and Math Initiative in Grades K-3

Research-based programs for beginning reading and math instruction in kindergarten, first grade, second grade and third grade provide balanced within a program as well as programs within a school, well-organized instructional plans and practice opportunities that permit all children to make sense of reading and/or math. **There are certain components or criteria that are common to all effective programs in reading and/or math. Each program must:**

- focus on the *Louisiana English Language Arts Content Standards* and the *Louisiana Mathematics Framework,*

- provide a balanced approach of reading and mathematics;
  - Reading programs should include phonemic awareness, phonics, fluency, morphology, syntax and comprehension skills;
  - Math programs must balance computation with reasoning, problem solving and other mathematical processes.

- Strategies and models used must be research based and proven effective in increasing student achievement.
- Teachers must have an understanding on how reading and mathematical concepts develop and what strategies must be used to move students from one level to the next.

- provide for effective, rigorous, proven intervention programs for students who experience difficulty in spite of all the "best practices" being implemented;

- assure that classroom environments are conducive to literacy learning and mathematics learning; such environments should include a variety of classroom materials and utilize a variety of instructional strategies appropriate for the child's age, ability level, and individual learning styles;

- include partnerships with families and the community as an integral part of the reading and math programs;

- address how teaching, learning and assessment are linked;

- provide staff development that is comprehensive and that emphasizes continuous improvement; on-going, follow-up support should be offered to teachers.

The sections below provide the rationale for the inclusion of these components.

Component 1: Louisiana Content Standards - *Effective programs must focus on the Louisiana English Language Arts Content Standards and the Louisiana Mathematics Frameworks.*

In May of 1997, the Louisiana State Board of Elementary and Secondary Education approved the Louisiana Content Standards in six areas: English/ Language Arts, Mathematics, Science, Social Studies, Foreign Languages, and The Arts. These standards, along with the accompanying benchmarks, serve as a guide to local school systems as they design curricula. The standards were developed by a cadre of local teachers, supervisors, and university professors. National standards and standards documents from other states were used as references in the development of Louisiana's standards.

Standards are broad statements of what students are to know, understand, and be able to do. Benchmarks are broad statements of process and/or content used as a reference to develop curricula and to assess student progress. Benchmarks are written at grade level "clusters": K-4, 5-8, and 9-12. Local school systems, with support and guidance from the state, will develop specific grade level "indicators" or "objectives" in order to meet the standards. State-level assessments in language arts and mathematics will be administered at grades 4, 8, and the Graduate Exit Examination (GEE) to serve as a "checkpoint" to make sure that students are on the way to attaining the standards.

Since all of the language arts --- reading, writing, speaking, listening, viewing, and visually representing ---- are

so closely interwoven, it is important that the K-3 Reading and Math Initiative reflects this connectivity. Activities in the language arts are seldom wholly discrete---"just reading," "just writing," or "just viewing." Each medium relates directly or indirectly to every other (IRA and NCTE, 1996). In addition, the strands in the area of mathematics are intended to be interwoven thoroughly. The very nature of the content implies that concepts and understandings should not be taught in isolation.

All curricular efforts in a school should be directed toward the attainment of the standards. These standards provide the vision of where Louisiana students should be when they leave our schools.

Component 2: A Balanced Approach - Effective programs should provide a balanced approach to reading and mathematics instruction.

In order to assure balance in any approach used with students, strategies and models must be based on sound research of how young children learn best. Teachers must have a clear understanding of how reading and mathematical concepts develop and what strategies must be used to move students from one instructional level to the next. "Balance does not mean having two very distinct parallel approaches coexisting in a single classroom in the name of "playing it safe" - for example, literature-based instruction on Monday and Wednesday and skills worksheets the remainder of the week. Nor should it suggest a sampling method in which a little of this and a little of that are mixed together to form a grouping of disparate approaches euphemistically termed 'eclectic'. (Dorothy Strickland, IRA Past President)

One goal of the K-3 Reading and Math Initiative is that students will become independent, competent, and avid readers. Years of research have indicated that there is no single or simple route to achieving this goal. An effective approach to reading and math requires a variety of approaches to meet the diverse needs of readers. A balanced program is organized around observations of the ways children learn. (Holdaway, 1979, 1984; Butler and Turnbill, 1984).

in the area of reading, a balanced approach includes

- a strong literature, language, and comprehension program that includes a balance of oral and written language;
- **phonological awareness** which includes
    1. **phonology:** the study of the speech sounds of a language and their underlying rules of usage.
    2. **phonemic awareness:** the understanding that speech is composed of a sequence of sounds (phonemes) that are recombined to form other words and the ability to identify and manipulate these sounds,
    3. **phonics:** the understanding of symbol-sound relationships,
    4. **fluency:** the ability to make these connections in a rapid and automatic fashion.
- **print awareness** for the emergent reader which includes the ability to attend to the conventions and formats of print;
- **reading practice** which takes place in many formats (e.g., shared, guided, and independent reading);
- ongoing **assessment** that informs teaching and ensures accountability; and
- **an-intervention** program that provides support for children at risk of reading failure.

Note: *According to the NICHD research, "Beginning reading programs should be constructed to ensure that adequate instructional time is allotted to the teaching of phonemic awareness skills, phonics skills, the development of reading fluency and automaticity, and the development of reading comprehension strategies. All of these components of reading are necessary but not sufficient in and of themselves. For children demonstrating difficulty in learning to read, it is imperative that each of these components be taught within an integrated context and that ample practice in reading familiar material be afforded. For some children, our research demonstrates that explicit, systematic instruction is crucial in helping them to understand and apply critical phonemic, phonics, fluency, and reading comprehension skills. Even for children who seem to grasp reading concepts easily, learning to read is not a natural process--reading instruction must be thoughtful, planned, and must incorporate the teaching of all the critical reading skills."* (Lyon, 1998)

In mathematics, a balanced approach consists of

- a conceptually oriented curriculum that emphasizes the development of mathematical understandings and relationships;
- the active involvement of students in doing mathematics as they construct, modify, and integrate ideas;
- an emphasis on the presentation of individual pieces of content in context of a broader perspective to develop children's mathematical thinking and reasoning abilities;
- the application of mathematics as it applies to a wide variety of real world problems and phenomena; ongoing assessment that informs teaching and ensures accountability; and
  a broad range of content that goes beyond arithmetic skills and includes measurement, geometry, statistics, probability, and algebra.

A Balanced Approach to Reading and Mathematics

Several issues should be considered when working toward a balanced approach to reading and math:

• **Balancing a skills emphasis with a meaning emphasis.** Both skills and meaning should be included in a balanced program. Skills are learned best when taught in meaningful ways. Students arrive at meaning by using their background knowledge about the topic and by using three basic cuing systems. These cues consist of the following:

- information from within the text for obtaining meaning **(semantics),**
- information within the text of the language **(syntax)**, and
- information within words **(graphophonics).**

Understanding these three cuing systems will enable teachers to understand how readers decode text as they reconstruct an author's ideas.

In the area of mathematics, a balanced approach includes using computational skills to solve problems within a real-world context. Mathematics is more than a collection of facts; mathematical understanding depends on having children construct it for themselves. As students progress through mathematics, it is essential that they develop an ability:

- to visualize spatial relationships **(geometry),**
- to approximate **(estimation),**
- to interpret data **(probability and statistics),**
- and to reason mathematically **(logical thinking)**.

- **Balancing direct and indirect instruction.** Direct instruction refers to the explicit teaching of skills and transmission of knowledge. Some children will not develop necessary skills for reading without direct instruction in specific skills. Indirect instruction occurs as teachers provide opportunities for children to apply skills that have been taught, to discover new ideas and strategies, and to assist one another as teachers and learners. Effective reading and math programs will address both direct and indirect instruction.

- **Balancing content and process.** In examining a balanced approach to reading and math, the issue of content and process must be considered. There is a certain body of knowledge that students must know, but learning is much more than the accumulation of facts. Process goals refers to the student's ability to apply or process information with new information they have internalized.

Balancing textbooks and other curricular materials In most schools, textbooks act as core materials in curricular areas. They tend to provide continuity from classroom to classroom and from school to school. However, students need to work with a wide variety of materials including quality children's literature and manipulatives in the area of reading and math.

Reading An effective reading program will provide a multitude of trade books. Within any classroom, there should, be books for read-aloud purposes, textbooks in the core literacy program, and books that children can self-select for independent or small group instruction.

Early literacy libraries should be considered in supporting emergent to fluent readers. A collection of leveled texts which represent a gradient level of difficulty should be available for children in the early grades. Texts that children can read with 90% accuracy or better will be found in such a collection. The early literacy classroom library collection should be available for teachers to use in small group, shared, guided reading and for students to read independently. Multiple copies purchased for these purposes will increase text reading levels of the

beginning readers over time.

School libraries should augment this balance by providing a rich and diverse collection of high-interest trade books, multimedia, and online resources, and group and individual reading activities to complement the children's curricular needs and their opportunities to self-select reading materials which stimulate their interest and capacity for independent reading.

Mathematics Because most primary children are at a pre-operational stage of development, they learn mathematics best through manipulating concrete materials and interacting with their environment. Children must manipulate materials and see the results of their activity to develop a solid grasp of mathematical concepts. Only after children have participated in a wide range of activities using a variety of materials will they have a complete understanding. Only then should symbols be used as labels to represent the concrete activity. Introducing symbols as a tool to represent concepts, rather than to teach them, reflects the belief that learning proceeds in a continuum from concrete to pictorial to symbolic.

Balancing formal and informal classroom assessment and standardized tests Until very recently, reading and mathematics assessment focused on measuring students' performance on a hierarchy of isolated skills. Now it is known that the whole acts of reading and math are greater than the sum of their parts (i.e., isolated skills). The role of standardized tests is likely to remain important. Norm- referenced standardized tests are useful in rank-ordering pupils, schools and school districts. However, they do little to inform teachers regarding instructional practices.

Classroom assessments that involve particular tasks are beginning to provide valuable information for the teacher to guide instructional decision making. In assessing student progress, teachers should include multiple measures taken over time. Assessing students' work samples as a supplement to standardized tests help to transform reading and mathematics instruction and learning.

Component 3: Intervention(s)/Remediation - Effective programs should provide effective, rigorous, proven program(s) for students who experience difficulty in spite of all the "best practices" being implemented.

Children arrive at school with language and math experiences that range from zero to 2000 hours. Some also speak multiple languages and take a variety of different background experiences with them. Others have special needs due to learning disabilities such as dyslexia, dyscalculia, and other language processing disorders. **Schools must have effective, rigorous, proven intervention programs as part of their comprehensive plan for instruction, with an emphasis on early intervention for children by mid-first grade.**

The classroom should include a powerful program of rich language, concrete experiences and instruction. Diagnostic information--- including observations, running records, checklists, scoring guides, individual and group administered tests, screening assessments, and collections of student work - collected daily, weekly, and monthly by the teacher will indicate which children are doing well and which children are beginning to struggle and lag behind their peers. Differential treatment of children exhibiting difficulty should be a first response. Instructional interventions must be designed to determine how students learn best and to determine their rate of acquisition, degree of comprehension, and extent of retention of curricular materials. Providing extra help for the lowest-performing students can be done in several ways. Examples of interventions include organizing in one-on-one and small group instruction by the teacher; providing additional instructional time; and enlisting extra tutorial help from instructional aides, tutors, parents, or community members. Interventions such as employing alternative teaching strategies may be needed for children to meet success. These interventions might include multisensory teaching, teaching to

individual learning styles, and/or using multiple teaching methods.

More intensive intervention may be warranted for children to achieve success. Participation in such intervention often is preceded by more formal diagnostic measures and assessments. Such help always involves parents as partners to the degree they can participate. This level of intervention can include approaches such as in-class supplemental help, extended class instruction, before-and after-school instruction, intersession, and summer programs.

The most effective interventions typically have the characteristics given below

- They are designed to determine how the student learns best.
- The dependence on a strong, effective program of regular classroom reading instruction is recognized.
- Reading for meaning is an overriding consideration.
- Sound-spelling correspondence is taught explicitly and systematically.
- Use connected, decodable text for children to practice the sound-spelling relationships.

- They are applied as early as possible in a child's educational career, but not before there has been an opportunity for effective classroom instruction to be tried first.
- They involve well-trained persons.
- The pupil-teacher ratio is kept very small.
- Intervention instruction is frequent, regular, and of sufficient duration to make a difference.

- They are more intense than the typical classroom experience, providing personalized, assessment-based instruction.
- Fluency is a major goal.
- Instructional procedures are used to introduce new books in order to insure that students are successful in reading them.
- Texts are carefully selected and sequenced to ensure student success. Word learning activities are used to help children become very familiar with print. Writing is used to teach and extend word identification skills. Instruction is fast paced.
- They are effective as gap-closing strategies.

Component 4: Learning Environment - Effective programs should assure that classroom environments are conducive to literacy learning and mathematics learning. Such environments should include a variety of classroom materials and utilize a variety of instructional strategies that are appropriate for the child's age, ability level, and individual learning style.

Children learn best when they can explore and investigate objects, events, and places. The classroom environment is enriched by allocating space and organizing materials that encourage these active learning experiences.

Reading

Guiding Principles

Reading and writing instruction ought to be closely linked. Students need to be involved in writing in order to explore all aspects of text, from graphophonemics to global text organization. Conversely, improving children's writing is heavily dependent on students' involvement in reading as students read their own and others' texts.

Children, including struggling readers and writers, learn to read by having access to complete language information in contexts that are meaningful to them. Most struggling readers, however, will not learn to read (or write) *without frequent, intensive, explicit* instruction designed to meet their needs as readers effectively, cognitively, and linguistically. Children who go to school from homes that do not value particular literacy practices may need to be convinced of their value through school instruction. Students who do not intuitively use effective reading strategies must learn them through school instruction. And children who have not developed the knowledge base required to use graphophonic, syntactic, and semantic cuing systems must learn it from teachers who can both build the knowledge **and show them how to orchestrate that knowledge in the process of reading and writing** (Rhodes & Dudley-Marling, 1996).

Routines that Support Literacy Development

Teachers read aloud to students
Teachers who read to students help them understand the nature and purposes of reading and familiarize them with the patterns of written language, which are often more complex than oral conversational language. Students' reading vocabularies, their reading comprehension, their reading interests and the quality of their oral language have been shown to be affected positively when someone regularly reads to them (Huck, 1979; McCormick, 1977; Evans, 1992; Hennings, 1992). Students from the lower ranges of reading achievement may benefit the most from being read to (McCormick, 1977).

Teachers provide direct instruction in alphabetic coding to facilitate early reading
The teacher helps the child understand and manipulate the relationship between sounds and letters. This understanding that written spellings systematically represent the phonemes of spoken words (termed alphabetic principle) is *absolutely necessary* for the development of accurate and rapid word reading skills. If children cannot perceive the sounds in spoken words they will have difficulty decoding or "sounding out" words in a rapid and accurate fashion (G. Reid Lyon, 1997)

Teachers support students' reading and writing
Shared and guided approaches to reading and writing ensure comprehension of what children are reading while facilitating children's attention to and engagement with print (Peterson & Eeds, 1990; Rhodes & Dudley-Marling, 1996).

Each student reads and writes independently
Students must have many opportunities to read and write independently if we expect them to become proficient

readers. Allington (1980) discovered that it is not unusual for poor readers to read connected texts only six to seven minutes a day, alone or with others. We cannot expect anyone to learn to read independently unless significantly more time than this short period of time is allocated to the reading of texts (Rhodes & Dudley-Marling, 1996).

Teachers teach students to read and write more effectively
Lessons that teach students to read and write more effectively should be the result of careful assessment of what students need to know in order to achieve the goals of comprehending and composing connected text. Lessons can be lengthy or they can be mini-lessons; whatever their length, they are designed to facilitate reading development by meeting individual needs of students (Rhodes & Dudley-Marling, 1996).

Materials that facilitate literacy development

If the goal of instruction for readers and writers is developing their ability to construct meaning of all kinds of connected texts, then children must be exposed to multiple types of reading materials including a broad array of genres. Within each genre, programs should supply materials that are suitable for reading aloud to children (from emergent readers through adolescents), materials that children can read with assistance (using instructional approaches such as shared reading and guided reading), and materials that children can read independently (including highly predictable texts, easily decodable texts, and texts that match students' background knowledge -- or familiar texts).

Teachers can determine whether a particular type of book can be read by a student independently, whether it should be shared with the student with instruction support, or whether it should be read aloud to the student by considering the accuracy with which the child can read the text. Children can generally read a text independently if they can read 95-100% of the words accurately. Children will need instructional assistance with a text when they can read between only 85-94% of the words accurately. It should be remembered, however, that totally accurate oral reading should not be the only goal of instructional programs. Good readers make miscues when reading aloud; they differ from poor readers in that their miscues generally make sense and preserve the author's intended meaning. The real measure of a child's success or failure with a given text is the number of *meaning disrupting* miscues a child makes. "...It is the ability to use reading strategies quickly, confidently, and with ever increasing independence that activates what Marie Clay calls a reader's 'self-extended system'. A response system that extends it's own capacity." (Ro Griffith, Margaret Hayes, Bas Stevenson, Virginia Francis, Mary Hodgson, 1996)

Guidelines for selecting materials

Were the materials written for authentic communicative purposes? Such materials are more likely to invite repeated reading and the real construction of meaning.

Did the authors use natural language in writing materials? It is much more difficult for students, especially students with language-based leaning disabilities, to construct meaning from texts that use "unnatural" language, because these texts make it very difficult for readers to use their knowledge of syntax and semantics while they read (Rhodes, 1979; Rhodes & Dudley Marling, 1996).

Are the materials relevant to the background experiences of the students? Children construct knowledge when they can make connections with their prior experiences (Rosenblatt, 1991).

Do the materials encourage divergent responses? Reading materials that encourage a wide range of responses provide a greater opportunity for students to talk about and extend the meaning that they have constructed from texts.

Are the materials predictable? Reading materials that support the prediction of certain features of texts are especially valuable for readers who are not yet fluent or who do not yet use effective reading strategies. Books are predictable if they contain: rhythmical, repetitive, or cumulative patterns, familiar stories or story lines, familiar sequences, and/or a good match between text and illustrations (Rhodes, 1981; Atwell, 1988).

Are multisensory materials provided for students? Children may use one or more senses to assist them in their efforts to understand language. The classroom should be equipped to provide the learner with visual, auditory, kinesthetic and tactile materials in order to meet learning styles of individual children.

Will the students learn something about the world from reading the materials? Many struggling readers are hampered by a lack of the broad base of knowledge that children develop through direct experience in stimulating environments and through wide reading. "High interest-low readability" materials often used with struggling readers may contain little content or no content that will add to their knowledge base. Predictable and decodable books that contain interesting content are far better to select for students so that they can learn to read and learn new content simultaneously.

Math

The mathematics environment should promote the development of a student's mathematical power. A spirit of inquiry should pervade all mathematics teaching and learning. An inquiry oriented classroom can be promoted by engaging students in extensive mathematics discussions and encouraging them to reason mathematics.

Because most primary children are at a pre-operational stage of development, they learn mathematics best through manipulating concrete materials and interacting with their environment. Children must manipulate materials and see the results of their activity to develop a solid grasp of mathematical concepts. The primary classrooms, therefore, should be well-equipped with a variety of manipulatives to be used in promoting mathematical understanding.

Guiding Principles

The mathematical ideas that children acquire in grades K-4 form the basis for all further study of mathematics. The depth to which children come to understand mathematical ideas is far more important than the number of skills they acquire. The success of students' mathematical achievement in later years depends largely on the quality of the foundation that is established during grades K-3.

Routines that Support Mathematical Development

Students should have many experiences creating problems from real-world activities, from organized data, and from equations. Students should be involved in many opportunities to "talk mathematics" and to write about mathematics. Teachers and students should question, react, and elaborate on each other's mathematical ideas and

solutions. Students should explore mathematical concepts using a wide variety of physical materials and supplies such as counters; interlocking cubes; connecting links; base ten, attribute, and pattern blocks; geometric models; geoboards; fraction pieces; and graph, grid, and dot paper as well as simple household objects such as buttons, dried beans, shells, and egg cartons.

Component 5: Family and Community Partnerships - Effective programs should include families and the community as an integral part of the program.

The involvement of families enhances the work in the classroom and helps children use literacy and mathematical concepts in different contexts. The role of the parent as an active participant in the child's learning is greatly enhanced when parents are made aware of the goals of the program and are provided with suggestions concerning ways in which to aid the children in meeting those goals. Teachers have found many ways to involve families in the life of the school, from conducting workshops on children's learning to having evening events, such as Family Math Night or Family Literacy Night.

Parents and other concerned individuals in local communities, including the private sector, are equally valuable as tutors, mentors and partners in reading and math. Tutoring, however, does not include the initial teaching of skills, but rather provides more time to practice skills taught in the classroom. The role of well-trained and supervised volunteer tutors should be to expand children's opportunities for practicing reading and for motivational support, but not to provide primary or remedial instruction *(Preventing Reading Difficulties in Young Children, 1998).* The K-3 Reading and Math Initiative encourages communities to form partnerships among schools, libraries, youth-serving groups, businesses, public and private agencies and other community organizations, and to build on them where they already exist. Schools and communities should use all available resources to raise awareness about what each person can do to help children learn to read well and independently and to develop appropriate mathematical concepts.

Component 6: Classroom-Level Assessment - Effective programs should address how teaching, learning, and assessment are linked.

Knowledge or awareness of how students learn has increased; we know that students acquire knowledge and skills in widely diverse ways. Since all students do not learn in the same way, multiple approaches to assessment are needed to meet their needs.

Teachers must select the most effective and valid forms of assessment for the educational setting; for the type of knowledge, skill or ability being assessed; and for the individual student. Appropriate assessment should be an ongoing process so that teachers can adjust their curricula to meet the needs of all students.

Classroom level assessment data should be used to bring about benefits for children. The National Association of Early Childhood Specialists in State Departments of Education and the National Association for the Education of Young Children in their document entitled *Reaching Potentials: Appropriate Curriculum and Assessment for Young Children* developed principles to guide assessment procedures for children in preschool through third grade.

- Curriculum and assessment are integrated throughout the program; assessment is congruent with and relevant to the goals, objectives, and content of the program.

- Assessment results in benefits to the child, such as needed adjustments in the curriculum or more individualized instruction and improvements in the program.

- Children's development and learning in all domains--physical, social, emotional, and cognitive--and their dispositions and feelings are informally and routinely assessed by teachers observing children's activities and interactions, listening to them as they talk, and using their constructive errors to understand their learning.

- Assessment provides teachers with useful information to fulfill their responsibilities successfully; to support children's learning and development, to plan for individual and groups, and to communicate with parents.

- Assessment involves regular and periodic observation of the child in a wide variety of circumstances that are representative of the child's behavior in the program over time.

- Assessment relies primarily on procedures that reflect the ongoing life of the classroom and typical activities of the children. Assessment avoids approaches that place children in **artificial** situations, impede the usual learning and developmental experiences in the classroom, or divert children from their natural learning processes.

- Assessment relies on demonstrated performance during real, not contrived, activities, for example, real reading and writing activities rather than only skills testing (Teale, 1988; Engel, 1990).

- Assessment recognizes individual diversity of learners and allows for differences in styles and rates of learning. Assessment takes into consideration children's ability in English, their stage of language acquisition, and whether they have been given the time and opportunity to develop proficiency in their native language as well as in English.

- Assessment supports children's development and learning; it does not threaten children's psychological safety or feelings of self-esteem.

- Assessment supports parents' relationships with their children and does not undermine parents' confidence in their children's or their own ability, nor does it devalue the language and culture of the family.

- Assessment demonstrates children's overall strengths and progress, what children can do, not just their wrong answers and what they cannot do or do not know.

- Assessment is an essential component of the teacher's role. Since teachers can make maximal use

of

assessment results, the teacher is the primary assessor.

- Assessment is a collaborative process involving children and teachers, teachers and parents, school and community. Information from parents about each child's experiences at home is used in planning instruction and evaluating children's learning. Information obtained from assessment is shared with parents in language they can understand.

- Assessment encourages children to participate in self- evaluation.

- Assessment addresses what children can do independently and what they can demonstrate with assistance since the latter shows the direction of their growth.

- Information about each child's growth, development, and learning is systematically collected and recorded at regular intervals. Information such as samples of children's work, descriptions of their performance, and anecdotal records is used for planning instruction and communicating with parents.

  The Louisiana Literacy Profile will be piloted in the 1999-2000 school year. It will include the following:

  1. Oral Language (K-3)
  2. Book and Print Awareness (K-1)
  3. Phonological Awareness (K-3)
  4. Graphophonemic Knowledge (K-3)
  5. Oral Reading (1-3)
  6. Comprehension (1-3)
  7. Written Language (1-3)
  8. Literacy Attitudes and Awareness (K-3)

  Items 5 and 6 will be assessed using the Developmental Reading Assessment

- A regular process exists for periodic information sharing between teachers and parents about children's growth and development and performance.

Component 7. Staff Development - Effective programs should provide staff development that is comprehensive and emphasizes continuous improvement. Follow up support must be given to classroom teachers.

At one time, staff development was synonymous with **"sit and get"** sessions in **which relatively passive participants** were "made aware" of the latest ideas regarding teaching and learning from "experts." Effective professional development includes

- collaborative planning that involves teachers, administrators, and parents in the process;

- long-term, in-depth, sustained activities;
- a variety of strategies, including coaching or mentoring for teachers and administrators to help them apply what they have learned;
- opportunities to reflect on and analyze individual professional practices through model lessons, collegial support discussions, visits to promising programs, and so forth; and
- discussions of research findings through study groups.

It is important that administrators--including principals and supervisors---be trained and knowledgeable about the strategies and approaches being used in the school.

In *Preventing Reading Difficulties in Young Children,* the researchers state that teachers require ongoing inservice and staff development support to absorb the information about reading and reading instruction. Professional development should not be conceived as something that ends with graduation from a teacher preparation program, nor as something that happens primarily in graduate classrooms or even during in-service activities. Rather, ongoing support from colleagues and specialists as well as regular opportunities for self-examination and for reflection are critical components of careerlong development of excellent teachers. It is recommended that local education authorities and teacher education programs should give teachers support and skills throughout their careers, especially during their early entry into the profession, to ensure that they are well prepared to carry out their mission in preventing reading difficulties.

According to the *Standards for Staff Development,* developed by the National Staff Development Council and the National Association of Elementary School Principals, staff development includes not only high-quality ongoing training programs with intensive follow up and support, but also other growth-promoting processes such as study groups, action research, and peer coaching. The standards listed below should be applied.

Context

Effective elementary school staff development requires and fosters the norm of continuous improvement;

- requires strong leadership in order to obtain continuing support and to motivate all staff, school board members, parents, and the community to be advocates for continuous improvement;
- is aligned with the school's and the district's strategic plan and is funded by a line item in the budget;
- provides adequate time during the work day for staff members to learn and work together to accomplish the school's mission and goals; and
- is an innovation in itself that requires study of the change process.

Process

Effective elementary school staff development

- provides knowledge, skills, and attitudes regarding organization development and systems thinking;
- is based on knowledge about human learning and development;
- provides for three phases of the change process: initiation, implementation, and institutionalization;

- base priorities on a careful analysis of disaggregated student data regarding goals for student learning;
- uses content that has proven value in increasing student learning and development;
- provides a framework for integrating innovations and relating those innovations to the mission of the organization;
- requires an evaluation process that is ongoing, includes multiple sources of information, and focuses on all levels of the organization;
- uses a variety of staff development approaches to accomplish the goals of improving, instruction and student success;
- provides the follow up necessary to ensure improvement; and
- requires staff members to learn and apply collaborative skills to conduct meetings, make shared decisions, solve problems, and work collegially.

Content

- Effective elementary school staff development increases administrators' and teachers' understanding of how to provide school environments and instruction that are responsive to the developmental needs of children in grades prekindergarten through six;
- facilitates the development and implementation of school and classroom-based management which maximize student learning;
- addresses diversity by providing awareness and training related to the knowledge, skills, and behaviors needed to ensure that an equitable and quality education is provided to all students;
- enables educators to provide challenging, developmentally appropriate interdisciplinary curricula that engage students in integrative ways of thinking and learning;
- prepares teachers to use research-based teaching strategies appropriate to their instructional objectives and their students;
- prepares educators to demonstrate high expectations for student learning;
- facilitates staff collaboration with and support of families for improving student performance; and
- prepares teachers to use various types of performance assessment in their classrooms.

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Electronic Resources

Educational Websites

The State Department of Education does not endorse these websites, but has listed them for professional growth opportunities.

American Association of School Administrators (AASA)
www.aasa.org

Association for Supervision and Curriculum Development (ASCD)
www. ascd.org

America Reads
www.crt.state.la.us/laserve/amreads.html

Eric on Line
www.leeric.lsu.edu

Education Week
www.edweek.org

Eisenhower National Clearinghouse
www.enc.org

Institute for Multisensory Education
www.imll.com

International Reading Association
www.readingonline.org

International Dyslexia Association
www.interdys.org

Jim Moulton Educator's Website: This website has dozens of sites for educators to browse and use from one link.
www.col.k12.me.us/teachers/sites.html

K-3 Reading and Math Initiative
www.doe.state.la.us

Learning Disabled Educational Information
www.ldonline.org

Mathematics Forum
http/://forum.swarthmore.edu

National Council of Teachers of Mathematics
www.nctm.org

National Association of Elementary School Principals (NAESP)
www.naesp.org/naesp.htm

National Center for Bilingual Education
www.ncbe.gwu.edu

National Institute of Children's Health and Development
www.nih.gov/nichd/

National Reading Consortium from the National Department of Education
www.ciera.org

National Association for the Education of Young Children
www.naeyc.org

National Center of Learning Disabled
www.ncld.org

National Council for Teachers of English
www.ncte.org

The National Center on Education and the Economy (Math and Reading Standards)
www.ncee.org

National Staff Development Council (NSDC)
www.nsdc.org

United State Department of Education
www.ed.gov/.
When the homepage comes up, click on publication, then on A to Z index, and R, Reading. For example, there is the full report and new book *Preventing Reading Difficulties*, edited by Snow.

University of Calgary
www.acs.ucalgary.ca/~dkbrown/.

Resources-Periodicals

The following periodicals and journals consistently represent high-quality, indepth articles by outstanding and forward-thinking authors.

Note: The State Department of Education does not endorse these periodicals.

Arithmetic Teacher
National Council of Teachers of Mathematics
906 Association Drive
Reston, Virginia

Educational Leadership
Association for Supervision and Curriculum Development
1703 N Beauregard Street
Alexandria, VA 22311-1714
703/578-9600 or 800/933-2723

Education Week
6935 Arlington Road, Suite 100
Bethesda, Maryland 28814-5233
301/280/3250

Journal of Staff Development
National Staff Development Council
POBox 240
Oxford, Oh 45056
513/523-6029

Language Arts
National Council of Teachers of English
1111 W Kenyon Road
Urbana, IL 61801-1096
217/328-3870

Phi Delta Kappan
Phi Delta Kappa International, Inc.
PO Box 789
Bloomington, IN 47402
812/339-1156 or 800/766-1156

Primary Voices K-6
National Council of Teachers of English
1111 W Kenyon Road
Urbana, IL 61801-1096
217/328-3870

The Reading Teacher & The Reading Research Quarterly
International Reading Association, Inc.
800 Barksdale Road
PO Box 8139
Newark, DE 19714-8139
800/336-7323

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

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