

A Summary of Stages Research

The Stages framework and activities were developed over many years, and much research shaped its evolution. This document summarizes the Stages research to date.

Stage One:

Stage One focuses heavily on identifying a learner's best method of accessing the computer. Different strategies are used to determine the most appropriate input device and style of use. The Stage One "Press and Hold" and "Press and Release" device use strategies are modeled on methodologies successfully implemented at the UCLA Early Intervention Center in California. The observation and assessment of learning preferences leads to the development of effective teaching strategies for each individual learner.

References for Stage One

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- Chomsky, Noam. Knowledge of Language: Its Nature, Origin, and Use. New York: Praeger Publishers, 1986.
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- In CASE The Newsletter for the Council of Administrators of Special Education, a Division of the Council for Exceptional Children, 1920 Association Drive, Reston, VA 22191
- Journal of Special Education Leadership: Volume 12, Number 2, Fall 1999
- Council of Administrators of Special Education and Sopris West Publications, 04093 Specialty Place, Longmont, CO 80504, (303) 651-2829, www.sopriswest.com
- TAM Connector Volume 12, Number 1, Fall 1999;
- Council for Exceptional Children, 1920 Association Drive, Reston, VA 22191

Stage Two:

Stage Two activities present language to learners without requiring a response, thus developing their receptive vocabulary. Early literacy research has shown the importance of exposing learners to the sound of words, the symbols for them, and their labels (Cunningham, 2000; King-Debaun and Musslewhite, 1997).

Research in the area of emerging literacy also tells us that the rhythm and rhyme inherent in nursery rhymes are important vehicles for the beginning development of phonemic awareness (Cunningham, 2000). Once learners can hear rhymes, they begin to isolate word patterns. Exposing learners to all forms of emerging literacy that are meaningful promotes language acquisition (King-DeBaun and Musslewhite, 1997).

References for Stage Two

- Beukelman, D., & Mirenda, P. 1992. Augmentative and alternative communication: Management of several communication disorders in children and adults. Baltimore, MD: Paul H. Brooks.
- Chomsky, Noam. Knowledge of Language: Its Nature, Origin, and Use. New York: Praeger Publishers, 1986.
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- Cunningham, Patricia. 2000. *Phonics They Use*. NY: Addison-Wesley Educational Publishers.
- Glenn, Sharon and Decussate, Denise. 1998. *Handbook of Augmentative and Alternative Communication*. San Diego, CA: Singular Publishing Group, Inc.
- King-DeBaun, Pati and Musslewhite, Caroline. 1997. *Emergent Literacy Success: Merging Technology and Whole Language for Learners with Disabilities*. Park City, UT: Creative Communicating.
- Masher, J. 1991. *Language and Literacy*. Ypsilante, MI: The High/Scope Press.

Sharakis-Doyle, Elizabeth. 1988. *Language Development, Speech Development and Cognitive Development*. MA: Communication Skill Builders.

Stage Three:

Stage Three is the first stage at which the learner is making choices, and so presents a significant opportunity for assessment. Until this stage, there have been few ways for the learner to show what concepts he or she has learned. We can now begin to evaluate the learner's expressive language development and cognitive skills. In addition, choices offered using multiple levels of representation (i.e., photographs, drawings, symbols) give learners an opportunity to show their understanding of concepts presented at different levels of abstraction.

References for Stage Three

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- Masher, J. 1991. *Language and Literacy*. Ypsilante, MI: The High/Scope Press.
- Sharakis-Doyle, Elizabeth. 1988. *Language Development, Speech Development and Cognitive Development*. MA: Communication Skill Builders.
- Wilson, Mary 1996. *Sequential Software for Language Intervention and Development*. Winooski, VT: Laureate Learning Systems, Inc.

Stage Four:

Stage Four covers academic readiness skills. The Reading Readiness Assessment activities measure letter identification and phonemic awareness for all 26 letters of the alphabet, in both upper and lower case. Research shows that these skills lead to word recognition, spelling ability, and reading proficiency.

Math Readiness Assessment activities follow the guidelines of the National Council of Teachers of Mathematics (NCTM). The foundation of the NCTM's curriculum standards is observing how the learner processes information. The Stage Four Math Readiness activities address each of the ten NCTM standards for learners in grades Pre-K through 2, though not every skill within each standard.

- Quantify* activity: NCTM Number and Operations Standard: Identify Numbers
NCTM Number and Operations Standard: Count up to 10
- Compare* activity: NCTM Measurement, Communication and Connections Standards
- Spatial Relations* activity: NCTM Geometry, Communication and Connections Standards
- Pattern Recognition* activity: NCTM Algebra, Geometry, Measurement, Data Analysis & Probability,
Problem Solving, Reasoning and Proof, and Representation Standards
- Shapes* activity: NCTM Geometry Standards

References for Stage Four

- Adams, Marilyn Jager. 1998. *Beginning to Read*. MIT Press.
- Adams, Marilyn; Foorman, Barbara; Lundberg, Ingvar and Beeler, Terri. 1998. *Phonemic Awareness in Young Children*. Paul H. Brookes Publishing Co.
- Cunningham, Patricia. 1998. *Classrooms That Work: They Can All Read and Write*. NY: Addison-Wesley Educational Publishers.

- Cunningham, Patricia; Hall, Dorothy; and Heggie, Tom. 1994. *Making Words: Multilevel, Hands-On Developmentally Appropriate Spelling and Phonics Activities*. Torrance, CA: Good Apple.
- Cunningham, Patricia. 2000. *Phonics They Use*. NY: Addison-Wesley Educational Publishers.
- Garland-Dore, Cynthia. *Math Their Way Summary Newsletter*. Center for Innovation in Education, Inc. CA.
- Hohmann, Charles. *Young Children and Computers*. 1990. Ypsilante, MI: The High/Scope Press.
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- National Council of Teachers of Mathematics. *Principles and Standards for School Mathematics*. 2000. Reston, VA 20191.

Stage Five:

The Stage Five Reading Assessment activities are based on contemporary research, centered on balanced literary skills, and balanced in classic approaches. Current trends favor a balanced learning process that provides educators with a broad approach to an expanded understanding of the skills needed to become a good reader. Researchers Marilyn Adams and Patricia Cunningham describe four cognitive procedures (the Orthographic, the Phonological, the Meaning and the Context Processors) to explain how learners develop effective reading skills. The Reading activities each reflecting one of these skills that are known to help address a balanced approach to learning to read. They offer ways to observe a learner's ability to recognize words up to third grade level, and know the meaning of those words; recognize letter patterns within those words; recognize phonemic sound patterns in rhyming words; and read high-frequency words within a context.

The Stage Five Math Assessment activities are based on national standards and anchored by traditional activities. They focus on skills that the National Council of Teachers of Mathematics (NCTM) considers appropriate for learners up to Grade 4, such as Charts and Graphs, Geometry, and Fractions. The NCTM believes these skill areas are important because they foster mathematical insight and reasoning. Computation is also included because it is typically addressed in local curricula.

References for Stage Five

- Adams, Marilyn. 1998. *Beginning to Read*. Cambridge, MA: The MIT Press.
- Adams, Marilyn; Foorman, Barbara; Lundberg, Ingvar; and Beeler, Terri. (1998). *Phonemic Awareness in Young Children*. Baltimore, MD: Paul Brookes Publishing.
- Blevins, Wiley. 1998. *Phonics from A to Z*. NY: Scholastic.
- Cunningham, Patricia. 1998. *Classrooms That Work: They Can All Read and Write*. NY: Addison-Wesley Educational Publishers.
- Cunningham, Patricia; Hall, Dorothy; and Heggie, Tom. 1994. *Making Words: Multilevel, Hands-On Developmentally Appropriate Spelling and Phonics Activities*. Torrance, CA: Good Apple.
- Cunningham, Patricia. 2000. *Phonics They Use*. NY: Addison-Wesley Educational Publishers.
- Hall, Susan L. and Moats, Louisa C. 1999. *Straight Talk About Reading*. Chicago, IL: Contemporary Books.
- Garland-Dore, Cynthia. *Math Their Way Summary Newsletter*. Center for Innovation in Education, Inc. Campbell, CA. www.center.edu
- Graves, Donald. 1984. *Writing: Teachers and Children at Work*. Portsmouth, NH: Heinemann.
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- Meyer, Anne and Rose, David. 1998. *Learning to Read in the Computer Age*. Cambridge, MA: Brookline Books.
- Moats, Louisa. (2000). *Speech to Print*. Baltimore, MD: Paul Brookes Publishing.
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- Neuman, Susan B.; Copple, Carol; and Bredekamp, Sue. 2000. *Learning to Read and Write: Developmentally Appropriate Practices for Young Children*. Washington, D.C.: National Association for the Education of Young Children.

Stage Six:

Stage Six applies academic concepts to the real world. The focus changes from academics to applied knowledge and functional learning skills, commonly referred to as activities of daily living (ADL). Stage Six skills include handling money, telling time, understanding how to use objects properly within their context, reading community signs, and dressing appropriately for different situations. The Stage Six Assessment activities let the learner show his understanding of these pragmatic, community-based skills.

References for Stage Six

- American Association on Mental Retardation: www.aamr.org
- Allen Shea and Associates: www.allenshea.com
- ARC of the United States: www.thearc.org
- Best Buddies: www.bestbuddies.org
- Centre for Communicative and Cognitive Disabilities (CCCD): www.edu.uwo.ca/cccd/cccd.html
- Crotched Mountain Foundation: www.cmf.org
- DO-IT (Disabilities, Opportunities, Internetworking and Technology) at the University of Washington: www.washington.edu/doi/
- Downs Syndrome WWW Page: www.nas.com/downsyn
- Eunice Kennedy Shriver Center: www.shriver.org
- Job Accommodation Network: janweb.icdi.wvu.edu
- National Center on Educational Outcomes: www.coled.umn.edu/nceo
- The National Center on Outcomes Research: www.ncor.org
- National Institute on Life Planning for Persons with Disabilities: www.sonic.net/nilp

Stage Seven:

Stage Seven focuses on writing skills through building words, sentences and stories. These skills are presented in a development sequence that allows the observer to pinpoint exactly where more work is needed. Contemporary research in writing and reading indicates that developing a strong sense of letters and the sounds they make is essential. Researchers suggest that the first words a learner writes independently should have a personal connection to make them more meaningful (Cunningham 1999 and Adams 1998). Educational experts believe reading and writing are parallel skills. Marilyn Adams says “Research indicates that children’s achievements in reading and writing are generally quite strongly and positively related. Further, across evaluations of beginning reading programs, emphasis on writing activities is repeatedly shown to result in special gains in reading achievement.”

References for Stage Seven

- Adams, Marilyn. 1998. *Beginning to Read*. Cambridge, MA: The MIT Press.
- Bybee, R. & Sund, R. 1982 *Piaget for Educators*. Charles E. Merrill Publishing Co.
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- Felzer, Laura. A Multisensory Reading Program that Really Works. *Teaching & Change*. v5 n2, Winter 1998.
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- Neuman, Susan B.; Copple, Carol; and Bredekamp, Sue. 2000. *Learning to Read and Write: Developmentally Appropriate Practices for Young Children*. Washington, D.C.: National Association for the Education of Young Children.