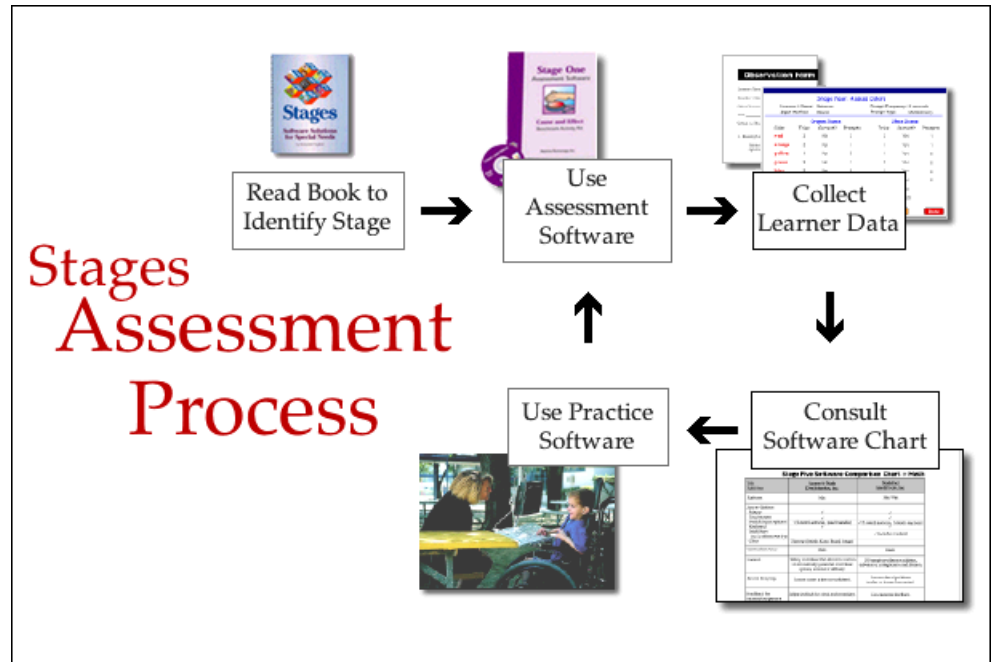


# Stages: An Alternative Curriculum and Assessment Philosophy

by Madalaine K. Pugliese

The *Stages* philosophy, framework, and supporting products have evolved to become a powerful alternative assessment and software-selection methodology for learners with cognitive and language delays. The original concept developed over twenty years ago and has continued to grow as I have held decision-making positions in local, state, and national projects that have advanced the use of assistive technology in special education and general services for individuals with disabilities.



Support for these communities primarily took the form of handouts created for special purposes, such as software recommendations for certain populations. These documents, collected and organized according to my own carefully researched philosophy, became the content foundation for *Stages*. This article summarizes the *Stages* philosophy, outlines learning strategies and recommends some software to help you get started in implementing these ideas right away.

The framework began as a book, providing detailed information supporting a philosophy to help identify the appropriate Stage for a learner. Readers can use the Observable Characteristics, looking for specific competencies or behaviors as described in each of the chapters, to informally determine learner status. Competency Goals identified at each Stage also serve as an informal, observable benchmark of a

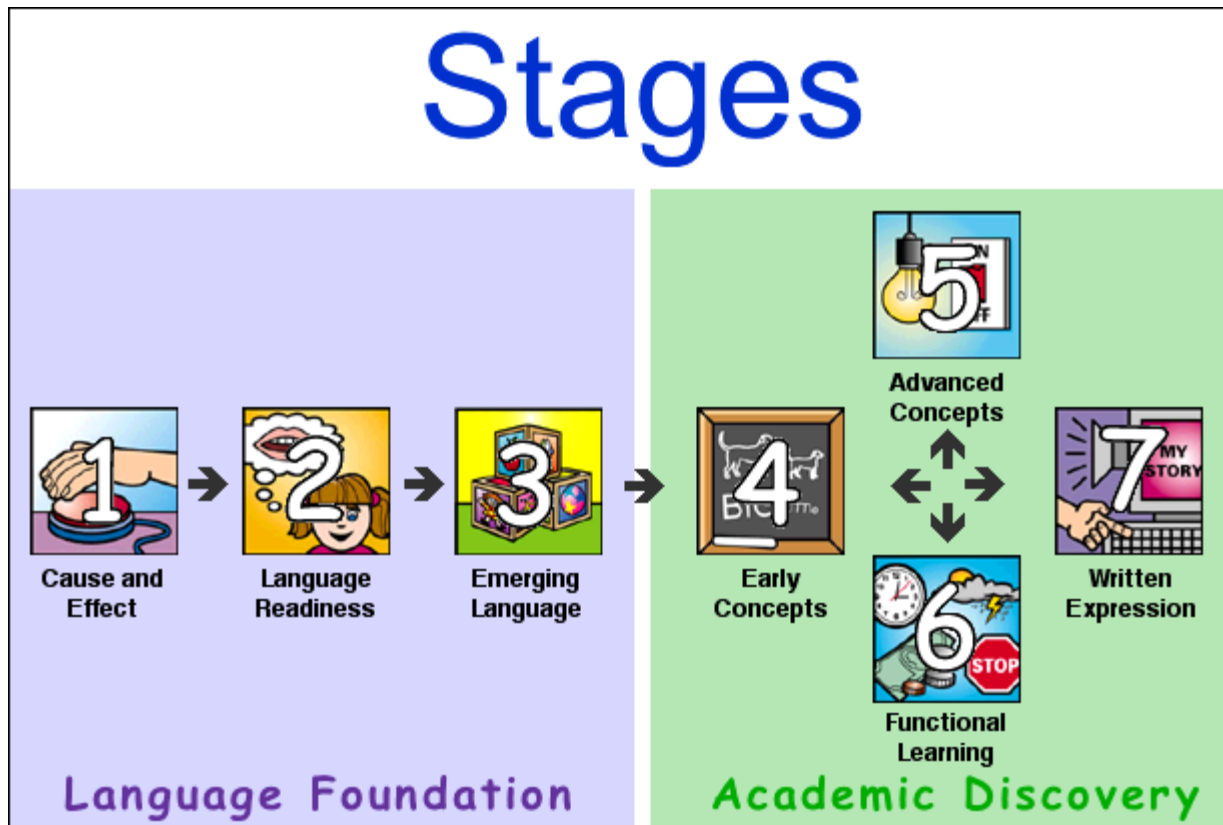
learners progress within a set of skills. True to the origins of the content, a discussion about relevant learning issues, off-computer classroom activity ideas and a list of recommended software to facilitate appropriate learning accompanies each Stage.

*Stages* then evolved into a set of informal, technology-based assessment software kits. As an alternative strategy to a standardized assessment, this accessible software can help evaluate a learner's best environment for success as well as plan for future learning and recreational activities. Each *Stages* Assessment Kit includes a CD of accessible activities with automatic data collection and research underlying the design of the activities. Observation Forms unique to each Stage guide the recording of behaviors that the computer can't see. Finally, each software kit contains guidelines for interpreting report and observed data, scripts for prompts to use when conducting specific assessment activities, and a Software Feature Comparison Chart with attributes of software that is recommended for use at that Stage. This practice software can then be used to build needed skills.

# How the Stages Work Together

As illustrated in the Figure below, each stage is part of a developmental pattern. Stages One through Three are sequential and focus on language foundation. Stages Four through Seven are not sequential because they work together to reflect a learner's development of complementary academic skills. For example, a Stage Five learner might be working on Stage Seven writing skills at the same time that she is working on reading skills.

Detailed descriptions of each stage appear on the pages that follow.





## Stage One: Cause and Effect

In Stage One, the learner begins to use an appropriate input device to control the computer. She realizes that pressing a switch or pressing on a touchscreen, for example, can make something happen on the computer screen. This major achievement is the first step in the learning process.

### About Stage One Software

Because the purpose of this Stage is not to present information, but to motivate the learner to discover how to control the computer, appropriate software generally offers very light content or meaning. For example, when the learner initiates an interaction, colors change on the screen or a sound might play. For some learners, that amount of feedback is just enough to call their attention to the computer or motivate them to work toward device mastery. Selecting age-appropriate software is important when considering motivation. Not all Stage One learners will be young children. Older learners may well need to begin at Stage One to develop input device mastery through cause and effect.

### Relevant Learning Issues

Successful assistive technology interventions do not have to involve a computer. For example, use motivating adapted toys or appropriate electronic appliances to inspire the learner to master an access device. Switch-adapted toys allow younger learners to make a car move or an animal jump. For older learners, activating a tape recorder or radio may be motivating.

### Sample Goal and IEP Objectives

At Stage One, the learner realizes that she controls the computer and works toward mastery of the appropriate input device. The learner is in control, producing desirable results and developing a new relationship with her environment.

Given name of accessible program, the learner will:

- consistently activate the switch using the same body part in 8 out of 10 trials
- demonstrate deliberate or intentional use of the input device
- activate the device with fewer than 5 prompts and in less than one minute

### Stage One Practice Software

For younger learners, try *Switch Kids* by SimTech. For older learners try *Teenage or Adult Switch Progressions* by RJ Cooper & Associates. For a generic program try the *Press To Play* series by Don Johnston, Inc.



## Stage Two: Language Readiness

In Stage Two, the learner is exposed to a rich, receptive language experience. He learns that objects have names and that actions have words to express them. The learner is not asked to identify objects, but simply to be a sponge and absorb information.

### About Stage Two Software

During Stage Two the learner builds a language-based foundation for learning for the rest of his life. The focus is on building an understanding of words and concepts. Software at Stage Two should not require that the learner identify a specific target, but should allow him to see and hear objects and actions. Look for software that offers brief, repetitive, and consistent learner prompts. Continue to reward the learners use of the device.

### Relevant Learning Issues

Language is representative of real objects and actions. Pictures or symbols in isolation carry limited meaning. Therefore, activities to extend understanding are important. We want learners to understand that the object is the same in a photograph, in a representational drawing, and in real life. Have real objects nearby that are the same as the ones that the learner sees in the software program. When the program names the object, present that object to the learner immediately and name it again, thus extending understanding. Then pair the object with both the text label and its representational symbol for learners who will eventually need to use symbols. Do the same with actions and concepts.

### Sample Goal and IEP Objectives

At Stage Two, the learner explores early language via computer access. The primary focus at this Stage is the development of receptive vocabulary.

Given name of program (accessible software presenting language), the learner will:

- activate the device to continue presentation of content with fewer than 5 prompts per session
- demonstrate attention to the content by head tilt, utterance, or eye gaze
- indicate interest by extending the time he pays attention to the task per session

### Stage Two Practice Software

For younger learners try *Eensie and Friends* by Don Johnston, Inc. For older learners try *Teach Me to Talk* by SoftTouch. For a generic program try *Point to Pictures* by RJ Cooper & Associates.



## Stage Three: Emerging Language

In Stage Three, the learner demonstrates an understanding of language through object identification and categorization. For example, she can show that she knows what a dog is (identification) and that an apple is a type of food (categorization). This is the first Stage in which the learner is asked to make a selection or respond to a question based on a prompt. Also introduced in this Stage are the concepts of divergent and convergent thinking skills. We use divergent learning activities when we want the learners to explore and discover content. We use convergent learning activities when we want learners to identify how much they have understood from their earlier explorations.

### About Stage Three Software

Now that the learner has accomplished preliminary and reliable mastery of access to the learning environment, content becomes our primary focus. Watch for menu options that permit adjustments to the way the content is presented to the learner. For example, if the learner is startled by sudden animation, look for a way to turn it off. Or if the learner is challenged by either vision or hearing, look for control features that allow an appropriate adjustment to customize the content or type of interaction. Also, look for ways to change the activity from a simple presentation of named objects to one in which the learner must identify a target on her own. A Stage Two “Here is a dog” activity becomes a “Find the dog activity” in Stage Three. The content carries more meaning at this Stage, so be sure that the software settings elicit the learners best performance.

### Relevant Learning Issues

Stage Three is a time to help learners understand how parts relate to a whole. For example, a common activity for typical learners might be putting together a puzzle. If the learner isn’t able to do such an activity because of challenges, technology offers us a way to simulate that experience. Use software that responds to switch presses to add pieces to a puzzle. Or, adapt manipulatives using Velcro or glue to attach pegs to the pieces for gross motor access.

### Sample Goal and IEP Objectives

At Stage Three, the learner shows she can discriminate among objects and within categories. The learner identifies or locates objects by pointing or otherwise indicating a selection. When learners begin to make reliable choices and demonstrate a preference, and when they indicate vocabulary discrimination and understanding, they are on their way to more sophisticated device use and communication independence.

Given name of accessible program (software with appropriate language development targets), the learner will:

- correctly identify an object or action when given a choice between it and a distracting object
- correctly select the requested target within a category
- wait as options are presented before activating the device to make a choice

### Stage Three Practice Software

For younger learners try *Wheels on the Bus* from the UCLA Intervention Program. For older learners and for generic programs try *First Words*, *First Verbs* and *First Categories* by Laureate Learning Systems.



## Stage Four: Early Concepts

In Stage Four, the learner uses the language skills that were introduced in earlier Stages to progress toward academic readiness. This means that he begins to lay the foundation for learning to read, write and calculate. Readiness for academics also means that he discovers the joy of learning new things and begins to build the confidence for more challenging content.

### About Stage Four Software

Stage Four software practices traditional readiness skills: math readiness, reading readiness, colors, shapes, and so on. Remember that learners need supportive opportunities to develop and experience both divergent and convergent thinking. In reviewing software for content, be cautious to stay true to what is most appropriate for your learner. The Stage Four learner is ready to identify letters, but not to read or write words.

### Relevant Learning Issues

Many child development specialists believe that if there is a barrier to working in small groups, interacting in fine and gross motor activities, engaging in pretend play, sharing materials or communicating, then there is a potential roadblock for cognitive and further language development. Computers enable learners to have virtual academic and play environments. Because the activity is computer-based, adaptive devices permit a physically challenged learner to draw or manipulate toys in ways that might not be possible without the simulation.

### Sample Goal and IEP Objectives

At Stage Four, the learner interacts with readiness level foundation skills software. He uses both divergent and convergent learning strategies. He begins to develop an identity as both an academic learner and a social peer. Successful social interactions also help learners understand their responsibilities among peers. These experiences lay the foundation for productive risk-taking as academic and social environments become more challenging.

Given name of program (appropriate skill level and content), the learner will:

- correctly identify a color, shape, number, or letter with 80% accuracy
- share the access device or play materials with a peer at least three times during a joint play activity
- respond to a request from another learner for sharing ideas or strategies for playing the game successfully within one minute of the request

### Stage Four Practice Software

For younger learners try *Millie's Math House* and *Bailey's Book House* by Edmark Corporation, now Riverdeep Interactive Learning. For older learners try *Early Learning* by Marblesoft. For virtual play simulations try Linda Burkhart's *Early Songs and Play*.

# Stage Five: Advanced Concepts and Communication



The majority of the learners academic growth occurs at Stage Five, which picks up where the Stage Four readiness curriculum leaves off. She expands her skills by performing simple mathematical operations and solving more complex problems. She grows through basic spelling skills to full and fluent literacy. The curriculum your learner follows will be set locally and will address a broad range of skills needed to succeed in areas of study such as reading, mathematics, science, social studies and geography. We can never know how much any learner will achieve, so we assume that all learners will progress through Stage Five with the right support for modifications and scaffolding in the learning process, including the use of the right adaptive device and appropriate content software.

## About Stage Five Software

A Stage Five learner is able to make choices in the activities used, and to pace herself throughout her interactions with the computer. Look for controls that allow her to make selections, to save or print her work, and to quit the program independently. Care should be taken to preview off-the-shelf educational software. Is there a reliable way for the learner to access the program? Does the program offer a clear and supportive learning environment? Watch for clear and organized visual presentation, appropriate use of animation and sound, and self-paced timing of interaction.

## Relevant Learning Issues

Although Stage Five covers all academic areas, your learner will most likely focus on math, reading and problem-solving skills. Competency in these areas is key to her success in all future learning endeavors and in related academic areas.

Standards developed by the National Council of Teachers of Math (NCTM) recommend less emphasis on traditional computation skills, instead encouraging the learner to experience math firsthand, rather than being a passive receiver of rules and procedures. Rather than focusing strictly on phonetic abilities, comprehension, or word recognition, current researchers favor a more balanced learning process that provides educators with a broad approach to an expanded understanding of the skills needed to become a fluent reader. Problem solving provides interesting insight into a learners ability to apply both reading and math rules and concepts while reasoning out a challenge.

Contemporary research in effective teaching and learning indicates that the more subject areas incorporated into the thinking process (known as multidisciplinary or integrated learning), the more effective the instruction.

## Sample Goal and IEP Objectives

At Stage Five, the learners computer becomes more of a tool, serving as a vehicle to planning, organizing work, and drawing conclusions. Learners apply their use of language skills to academics in an integrated process.

- Given name of program (reading software), the learner will correctly identify the meaning of a word that is displayed by selecting the object that represents it with 80% accuracy.
- Given name of program (math software), the learner will correctly add or subtract two double-digit numbers without regrouping with 80% accuracy.
- Given name of program (problem solving software), the learner will use clues to solve riddles with 80% accuracy.

## Stage Five Practice Software

For early reading try the *UKanDu Little Books* series by Don Johnston, Inc. For math try *Math Pad* by IntelliTools. For problem solving try *Thinkin' Things* by Edmark, now Riverdeep.



## Stage Six: Functional Learning

A Stage Six learner applies academic concepts to real world situations. In this Stage, the learner is aware of and wants to be involved in the world around him. He begins to apply his knowledge to allow him to become more independent. The focus changes from academics to applied knowledge and functional learning skills, commonly referred to as activities of daily living.

### About Stage Six Software

This Stage does not concentrate on scholastic skills in isolation. Instead, applied, practical real world skills are the focus in a supportive and frequently practiced environment. Because the material in Stage Six is typically practiced by more mature learners, it is important to find programs that present images, sounds, and reinforcements that are appropriate to their interests. The graphics shown on the screen should present objects realistically, as in photographs, rather than in representational drawings. This helps the learner make the connection between the representation and the real world object.

### Relevant Learning Issues

Often a learner's biggest challenge at this Stage is generalizing the content. If he can make change correctly in a software program, can he also do the same with real money? Use off-computer activities to practice skills with real life items. Provide access to coins and bills and to different types of calculators, telephones, and clocks (both analog and digital). Find as many ways as you can for the learner to practice and apply his skills. When a learner sees a skill applied in a new setting, he can make progress toward generalized understanding.

### Sample Goal and IEP Objectives

At Stage Six, the learner practices real life skills over and over, working toward independence. The goal is to foster genuine independent living skills until they are firmly established.

- Given *name of program* (activities to identify safety signs), the learner will identify community safety signs in context.
- Given *name of program* (activities for making change), the learner will make correct change for up to ten dollars.
- Given *name of program* (activities for telling time), the learner will correctly tell time to the quarter hour.

### Stage Six Practice Software

For time telling skills try *TimeScales* by Attainment Company. For practice with money try *Money Skills* by Marblesoft. For activities of daily living try *Independent Living Skills* by Computer Options for the Exceptional.



## Stage Seven: Written Expression

The ability to express oneself on paper independently so that thoughts can be easily understood is the most sophisticated skill in the Stages framework. Because a separate teaching methodology is associated with writing and the related software selection is unique, this area is set aside as a separate Stage.

Writing skills are interwoven with skills considered in earlier Stages. At Stage Four, a learner works on reading readiness skills by trying to write the letters of the alphabet. At Stage Five, she uses writing skills to complete most academic assignments and projects. Stage Six learners do not write for academic purposes, but are expected to master functional writing skills that are needed for real-world efforts, such as writing shopping lists and filling in job applications. At Stage Seven, a learner's ability to write independently is essential to continuing her education, seeking employment, and communicating with others.

### About Stage Seven Software

It is widely accepted that the more senses the learner uses, the better she will understand and remember the skills addressed. Giving learners the opportunity to apply both eyes and ears to the writing process employs this multisensory advantage. The computer offers a medium where learners can benefit from the visual presentation of letters and words combined with sound. People with learning challenges can greatly benefit from using a word processing program that takes advantage of the computer's text-to-speech capability. What we generally call talking writing software offers a range of options.

### Relevant Learning Issues

Using auditory feedback such as text-to-speech can enhance learners' abilities to self-correct their writing errors. This builds both independence and self-esteem. As the learner begins to write words and sentences, she can use auditory feedback and hear her work read back to her. This will help her develop skills in proofreading, editing and rewriting.

### Sample Goal and IEP Objectives

At Stage Seven, learner independence in written language is the eventual goal. Learners with more intensive cognitive and language delay can work toward supported independence in their writing. Given name of program ("talking" writing software), the learner will:

- write a 3-sentence story containing at least 15 words with all words used and spelled correctly.
- use the software to correct spelling errors in a composition with 80% accuracy.
- write a story independently that contains a beginning, middle and end.

### Stage Seven Practice Software

For early writers try *Stanley's Sticker Stories* by Edmark, now Riverdeep. For a younger writer beginning word processor try *Dr. Peet's Talk Writer* by Interest-Driven Learning, Inc. For older writers try *IntelliTalk II* by IntelliTools.

## Concluding Thoughts

*Stages* gives educators a unique opportunity to look at the skill sets and language acquisition of learners that otherwise may be difficult to assess. By identifying the Stage of a learner, assessing her skills, and gathering performance and behavioral data, we can get a much clearer picture of the level of understanding of a learner with special needs than ever before. Using Software Feature Comparison Charts to identify practice software that is appropriate to build the learners skills gives us a strategy for that learners educational plan. Reevaluating the learner after using the practice software shows us evidence of her progress.

## Resources

*Stages* is published by Assistive Technology, Inc., 7 Wells Avenue, Newton, MA 02459; 800/ 793-9227, <http://www.assistivetech.com>.

Software titles recommended in this article are generally available for purchase either individually or in Stage-specific bundles through Assistive Technology, Inc.

## About the Author

**Madalaine Pugliese** is the author of *Stages* and Director for the Assistive Technology Program at Simmons College in Boston. She was recently recognized as a Laureate in the 2000 Computerworld Honors Program for her work on *Stages*.  
email: [pugliese@mediaone.net](mailto:pugliese@mediaone.net).