SOLO®
by Don Johnston

School Administrator's Handbook

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SOLO

TABLE OF CONTENTS

Overview

Learning needs in today's classrooms are more diverse than ever. Yet in this age of accountability, learning expectations are identical for all learners. The key to success involves leveraging individual strengths and supporting all learners as they build skills for long-term achievement.

This handbook is for school administrators who are using SOLO® in their schools. Anyone who is challenged with improving learner achievement should read this handbook.

Following is an example of how SOLO has proven to be a successful learning solution for advancing the learning process:

NCTI Grant Study
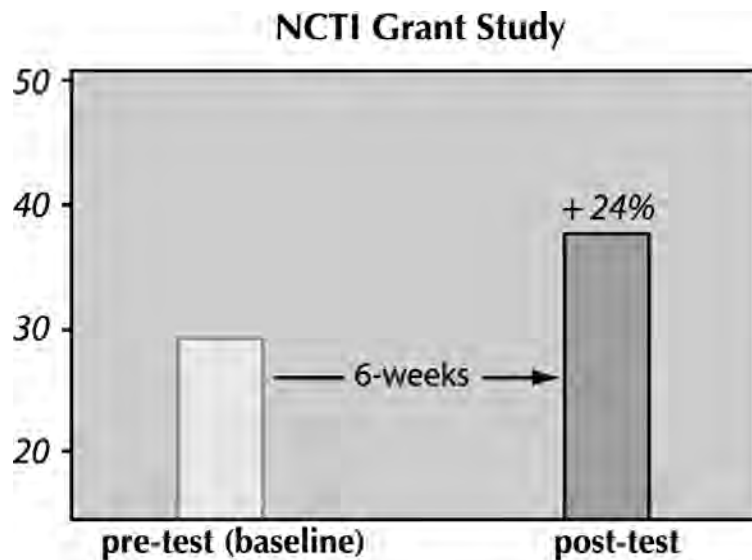
Low and average performing learners improved performance by 24% on a standardized test of writing when using SOLO paired with writing strategy instruction during a six-week study sponsored by the National Center for Technology Innovation (Center for Literacy & Disability Studies, 2006). Groups who taught strategies *without* using SOLO realized only single-digit increases.

You do not need to know in detail how to use SOLO to understand the challenges and solutions presented in this handbook; however, it might be helpful to have an overview. To learn more about SOLO, see the **Appendix: What is SOLO?** section at the end of this handbook.

Administrator Challenges and SOLO Solutions

You purchased SOLO because you are aware of how SOLO can address some of the challenges that face school administrators today. This section presents solutions to addressing these challenges with SOLO.

SOLO was designed knowing that learners achieve success in reading and writing by using the following processes:

During the reading process, learners do the following:
- Successfully read
- Synthesize what they read
- Capture their thoughts

After learners have successfully read, they are ready to write. During the writing process, learners do the following:
- Plan and organize
- Gather information from reading
- Write a draft
- Revise and edit the draft
- Publish the draft

SOLO facilitates these processes through its innovative tools.

Challenge: Integrate Universal Design for Learning (UDL) in Curriculum

UDL is an educational approach to teaching, learning, and assessment, drawing on new brain research and new media technologies to respond to individual learner differences.

In today's schools, teachers need to teach diverse learners to meet high standards. One of their challenges is that a single classroom may include learners who struggle to learn for any number of reasons.

For example, learners in the same classroom can:
- Struggle to learn the English language
- Show little or no interest in learning
- Have disabilities
- Be at appropriate grade and/or age level learning
- Require additional learning challenges to stay engaged and motivated

UDL can be applied to create flexible goals, methods, materials and assessments that accommodate the learner differences listed above. It is meant to focus on the need for multiple approaches to meet the needs of diverse learners. UDL is based on three principles that your teachers can use to advance the learning process.

The UDL principles are:
- **Multiple means of representation** to give learners various ways of acquiring information and knowledge
- **Multiple means of expression** to provide learners alternatives for demonstrating what they know
- **Multiple means of engagement** to tap into learners' interests, offer appropriate challenges and increase motivation

SOLO uses the UDL approach and technology to accommodate a wide variety of users.

Solution

Administrators and teachers want their learners to succeed. To make this happen, teachers need to take advantage of tools and best practices to advance and measure the learning process in such a way that administrators can identify and prove the desired outcomes.

In many schools, teachers are finding that collections of digital tools and resources expand their options for presenting information, scaffolding learners and offering choices for learner expression (Rose and Meyer, 2002).

SOLO is a skill-building tool that uses UDL multiple means principles to extend and reinforce the teacher's instruction to everyone in the classroom through flexible use of:

1. Digital and printable text for on- or off-computer accessibility to assignments
2. Text formatting options for maximum viewing clarity
3. Linear text and/or graphical organization tools to match multiple learning styles
4. Lockable text option for use in scaffolding learning
5. Auditory and graphical support options to meet a variety of diverse learning needs
6. Access to digitized textbooks

The following table shows how SOLO incorporates the UDL approach to advance the learning process. The left column provides a more detailed description of each UDL principle. The right column explains how SOLO addresses each principle.

UDL Approach	SOLO Solution
Multiple Means of Representation	
Teacher should: • Provide supports for limited background knowledge and establish a context for learning. • Provide multiple examples, show the range of examples, provide examples and counter-examples. • Represent information in multiple media and formats (e.g., electronic text version of a book). • Highlight critical features (e.g., main idea and supporting detail).	SOLO allows learners to: • Structure the reading and writing process by using pre-defined templates. • Write successfully using scaffolds created by the teacher. • Work with a topic-leveled outline or graphical organizer. • Use electronic books in a variety of file formats. • Draw from content on the Internet to use in research projects. • Improve comprehension by highlighting text as it is read aloud. • View and study from their notes.
Multiple Means of Expression	
Teacher should: • Provide flexible opportunities for demonstrating skill (e.g., written, oral or visual presentation, explanations, word processor). • Provide flexible models of skilled performance. • Provide ongoing, relevant feedback. • Provide novel problems to solve (e.g., unique problems outside the initial instructional set to promote generalization and transfer.	SOLO allows learners to: • Capture their thoughts by allowing them to write notes. • Write reports using the notes they created. • Communicate using graphic organizers. • Write and revise reports by allowing them to show or hide written feedback, instructions or examples created by the teacher. • Organize notes into a first draft. • Insert pictures for use as sentence starters. • Choose from different levels of outlines to guide them in improving reading and writing outcomes. • Hear their writing read aloud for more effective editing and revision and/or for presentation of their work to a larger audience.

UDL Approach	SOLO Solution
Multiple Means of Engagement	
Teacher should: • Assign different levels of task difficulties. • Offer choices of content and tools (e.g., choice of books to study literature). • Provide adjustable levels of challenge (e.g., range of materials at different reading difficulties). • Offer choices of learning context (option to work in study carrel vs. open classroom).	SOLO allows learners to: • (For the linear learner) Build writing skills by working with a topic-leveled outline. • (For the visual/spatial learner) Use a graphic representation of an outline. • Self-select reading material on a particular subject either from the Internet or other electronic text. • Choose from a variety of templates and outlines to match a particular learning level. • Hear text read aloud either through computer speakers or headphones.

Challenge: Use Differentiated Instruction

As classrooms have become more diverse with learners at all levels and with all abilities, *Differentiated Instruction* has been applied to everyone. In these settings, teachers can use a Differentiated Instruction approach to maximize each learner's growth and success.

There are three areas in which you differentiate instruction: *Content*, *Process*, and *Products*.

In the *Content* area, teachers need to:
- Use several elements and materials (e.g., concepts, generalizations or principles, attitudes and skills) to support instructional content.
- Align tasks and objectives to learning goals.
- Deliver instruction that is concept-focused and principle-driven. You should be able to adjust this instruction according to the degree of complexity for the diversity of learners in the classroom.

In the *Process* area, teachers need to:
- Use flexible grouping of learners (e.g., whole-class, small groups or pairs) based on content, project and on-going evaluations.
- Manage classrooms by using organization and instructional delivery strategies to effectively operate a classroom.

In the *Products* area, teachers need to:
- Perform initial and on-going assessment of learners so that they can better provide a variety of approaches, choices and scaffolds. This assessment addresses the varying needs, interests and abilities that exist in classrooms of diverse learners.
- Ensure that all assignments are interesting, engaging and challenging to all learners.
- Offer various means of expression and alternative procedures and provide varying degrees of difficulty and types of evaluation so that learners can express their knowledge and understanding.

Solution

SOLO offers solutions to facilitate using Differentiated Instruction in the *Content*, *Process* and *Product* areas that are described above.

In the *Content* area, SOLO allows learners to:
- Work with a topic-leveled outline or graphical organizer.
- Use electronic books in a variety of file formats.
- Draw from content on the Internet to use in research projects.
- Self-select reading material on a particular subject either from the Internet or other electronic text.

In the *Process* area, SOLO allows learners to:
- Improve comprehension by highlighting text as it is read aloud.
- Write successfully using scaffolds created by the teacher.
- Structure the reading and writing process by using pre-defined templates.
- Capture their thoughts by allowing them to write notes.
- View and study from their notes.
- Write reports using the notes they created.
- Write and revise reports by allowing them to show or hide written feedback, instructions or examples created by the teacher.
- Organize notes into a first draft.
- Choose from different levels of outlines to guide them in improving reading and writing outcomes.
- Build writing skills by working with a topic-leveled outline. This process works best or the linear learner.
- Use a graphic representation of an outline. This process works best for the visual/spatial learner.
- Choose from a variety of templates and outlines to match a particular learning level.

In the *Product* area, SOLO allows learners to:
- Insert pictures for use as sentence starters.
- Hear their writing read aloud for more effective editing and revising and/or for presentation of their work to a larger audience.

Challenge: Employ Formative Assessment

It is important to consider that over the course of a year, teachers can build in many opportunities to assess how learners are learning and then use this information to make beneficial changes in instruction. This use of assessment to provide feedback to teachers and learners over the course of instruction is called Formative Assessment (Boston, Carol, 2002).

There is strong research evidence that indicates the efficacy of Formative Assessment. For example, Black and William report that studies of formative assessment show an *effect size* on standardized tests of between 0.4 and 0.7, larger than most known educational interventions. (The *effect size* is the ratio of the average improvement in test scores in the innovation to the range of scores of typical groups of learners on the same tests.) (Black, Paul and William, Dylan, 1998.)

SOLO addresses Formative Assessment in the areas of reading and writing. For reading assessment, teachers can easily see learners' thought processes by viewing their notes and highlighted information. For writing assessment, teachers can obtain specific learner progress based on learners' writings.

Reading Solution

When teachers provide feedback to learners as part of formative assessment, it helps learners become aware of any gaps that exist between their desired goal and their current knowledge, understanding or skill and guides them through actions necessary to obtain the goal (Boston, Carol).

If learners' initial ideas and beliefs are not known or ignored, the understandings that they develop can be very different from what we intend. (Hasselbring, T., 2006).

To facilitate this process, your teachers should ensure that learners use the notes and outline features in Read:OutLoud™. As learners read, they can create an outline, highlight important ideas and write down their thoughts in notes.

When learners write notes that include a variety of thoughts, these notes can provide a basis that help teachers evaluate their knowledge.

Following are some examples of some thoughts learners can include in notes:
- Opinions
- Questions
- Connections to self
- Connections to world
- Connections to other texts
- Feelings
- Inferences

As your teachers review the outline and notes, they easily see where learners have misconceptions and can redirect their thinking.

Your teachers can help learners develop their outlines and notes by doing the following:
- Ask targeted questions
- Make provoking comments
- Ask learners to expand on their thoughts

As your teachers review their learners' assignments, they can see what their learners are thinking. The outline and notes are evidence of tracking learners' thought processes and evolutions.

Tip Misconceptions are often revealed in outlines and notes. If this is the case, your teachers can have the learners re-read. If enough learners have the similar misconceptions, your teachers may want to repeat this process.

Writing Solution

Teachers need to document and evaluate the progress of their learners effectively. The results of these evaluations should be directly based on a correlation to the assignments that learners have completed over time. These evaluations help teachers modify upcoming lessons as necessary.

As learners write in Write:OutLoud®, your teachers can use SOLO to analyze many documents created by a learner over time and display the results in a graph or a report. These results are categorized by writing fluency (productivity) and word usage.

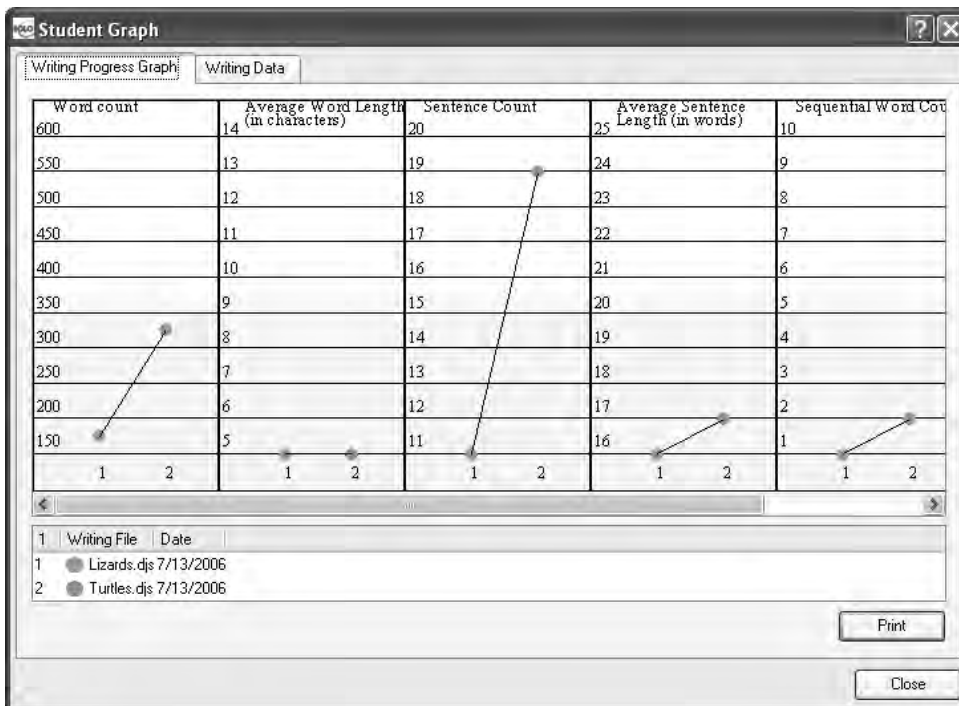The reports list the following:

Writing Fluency
- Word Count
- Average Word Length (in characters)
- Sentence Count
- Average Sentence Length (in words)

Word Usage
- Sequential Word Count
- Low Frequency Word Count

The reports can be viewed on screen or printed for portfolios.

Tip An effective use of these graphs and reports is to create them on a set schedule. At the beginning, middle and toward the end of the school year, your teachers can use the **Student Progress** feature in SOLO to create these graphs and reports.

If learners use Co:Writer® when writing, teachers can identify vocabulary usage (e.g., words used most, misspelled words, etc.). This data is useful when planning instruction and remediation.

Challenge: Provide Professional Development for Teachers

Every school or school district has at some point made an investment in learning technology that, for one reason or another, just hasn't paid off. Schools are investing in professional development more than ever to train and provide strategies for their most valuable resource — their teachers.

Solution

Don Johnston Incorporated offers a variety of solutions to address all of your professional development needs, including learning how to implement SOLO to maximize outcomes.

For immediate help on using SOLO features, use the SOLO Help. Online SOLO Help is included with SOLO. If at any time your teachers need step-by-step procedures, they can open SOLO Help, display and print instructions on how to complete a task.
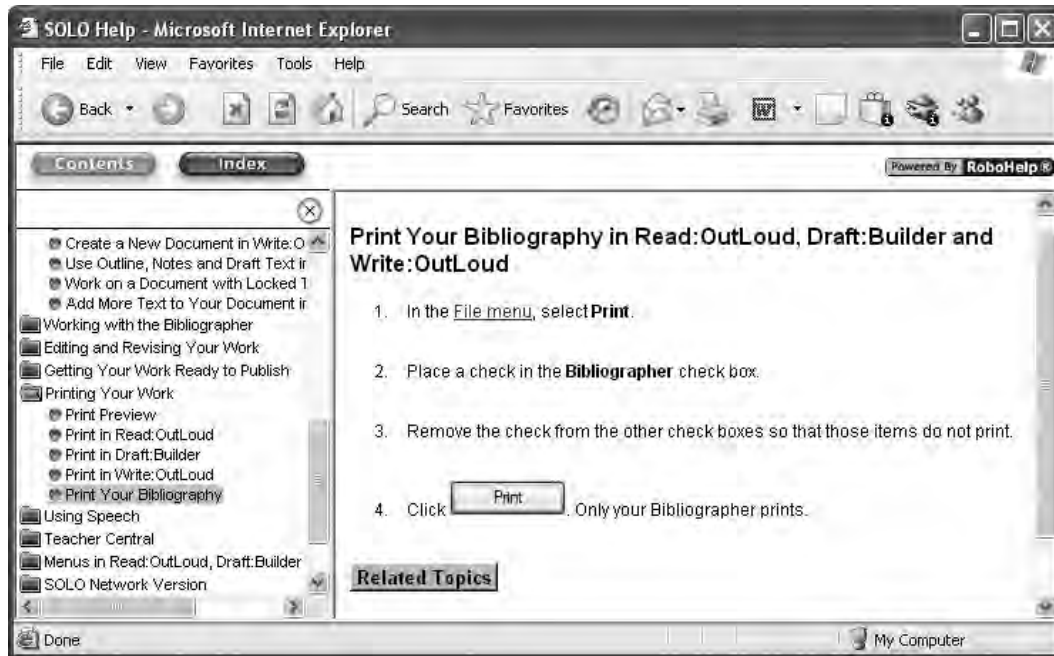
For hands-on SOLO training, Don Johnston Incorporated comes to you with customized training to meet your needs. Hands-on training concentrates on improving learner achievement in literacy using SOLO. During the training, skills are practiced with "real-life" classroom application contexts. These hands-on experiences, in your own district computer lab, focus on connecting technology to literacy intervention.

To help your on-staff trainers effectively train teachers to use SOLO, use the SOLO Professional Development Kit. The SOLO Professional Development Kit includes two day's worth of training materials, which can be spread out over a number of smaller sessions. The kit is modeled on adult learning strategies.

To get presentations and training online, log into a Virtual Interactive Presentation (VIP). A VIP comes directly to you via an Internet connection and phone line.

- Our Signature Series of VIPs are live interactive presentations that are brought to you by national experts in their respective fields of reading, writing, legislation, grant-writing, research or process improvement.
- In our Customized Presentation VIPs, we work directly with you to meet the needs of your school or district to customize a training or presentation so that you can have the benefit of our trainers and consultants when you need them.

Tip You can see a description of all professional development services offered by visiting Don Johnston Incorporated's web site at **http://www.donjohnston.com**/.

Challenge: Improve Reading Skills for Diverse Learners

Research shows that about 70% of older readers require some form of remediation. Very few of these struggling readers need help to read the words on a page; their most common problem is that they are not able to comprehend what they read (Biancarosa, G., & Snow, C. E., 2004, pg. 3).

Good readers read strategically. Struggling readers typically lack critical comprehension strategies to make sense of the text. The National Reading Panel concluded that comprehension is "dependent on active and thoughtful interaction between the text and the reader." The inability to comprehend can be exacerbated when readers do not speak English as their first language, are recent immigrants or have learning disabilities.

Solution

Learn and practice effective research-based reading strategies. Read:OutLoud includes research-based reading comprehension strategy guides so readers gain true understanding of concepts in social studies, science and language arts — this makes SOLO a tool for *every* class and *every* learner to acquire skills that serve for a lifetime.

Example of one of SOLO's research-based reading comprehension strategy guides
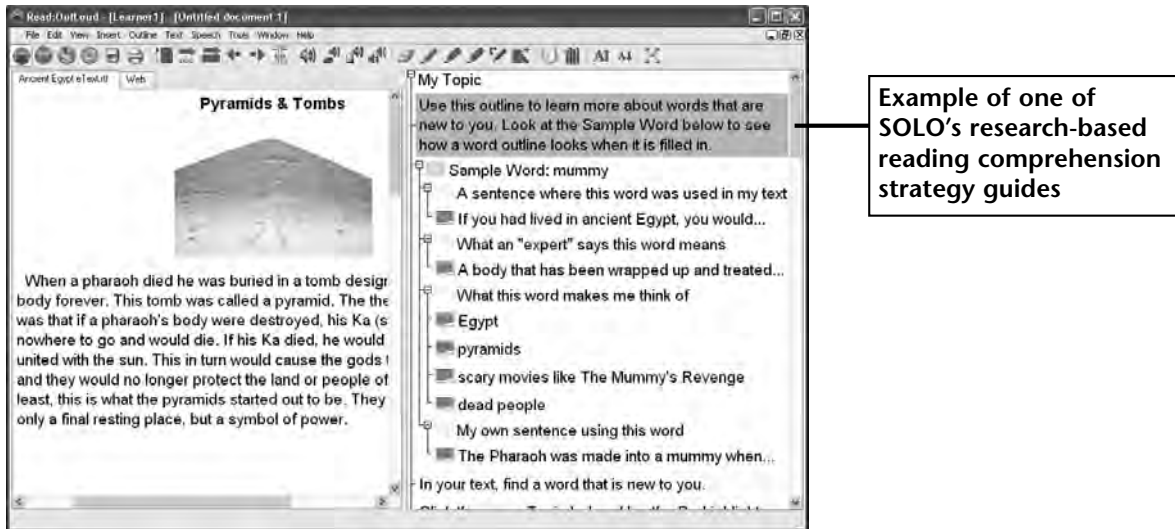
Readers who are given cognitive strategy instruction show significant reading comprehension improvement over struggling readers trained with conventional reading instruction methods (Dole, Brown & Trathen, 1996).

Tip Readers can also research using the Internet directly though SOLO where they can build outlines, take notes and create a bibliography.

Tip SOLO works seamlessly with Reading Comprehension Strategies such as CRISS (CReating Independence through Student owned Strategies).

Challenge: Improve Writing Skills for Diverse Learners

Research shows that even the most fluent readers in high school do not necessarily write well enough to succeed in college or the business world or perform well on the SAT. Many of the skills in writing, such as grammar and spelling, reinforce reading skills. Learners need instruction in the writing process to be connected to the types of writing tasks they will have to perform well in high school and beyond (Biancarosa, G., & Snow, C. E., 2004, pg. 19).

Struggling writers spend much less time strategically planning and organizing their ideas than proficient writers. They often lack critical strategies such as collecting information, analyzing relevant ideas and organizing them into writing. Struggling writers also find that translating thoughts into writing can feel overwhelming. Their writing often suffers from phonetic or inventive spelling, lack of richness, limited detail and incoherence.

Solution

In SOLO, learners can start the writing process by reading and researching. Then, they can strategically plan, organize and write a first draft. Finally, they can focus on revising and editing their work.
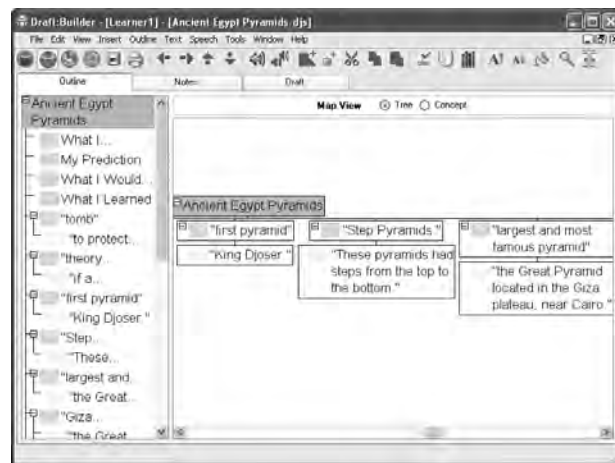
Plan, organize and create a draft
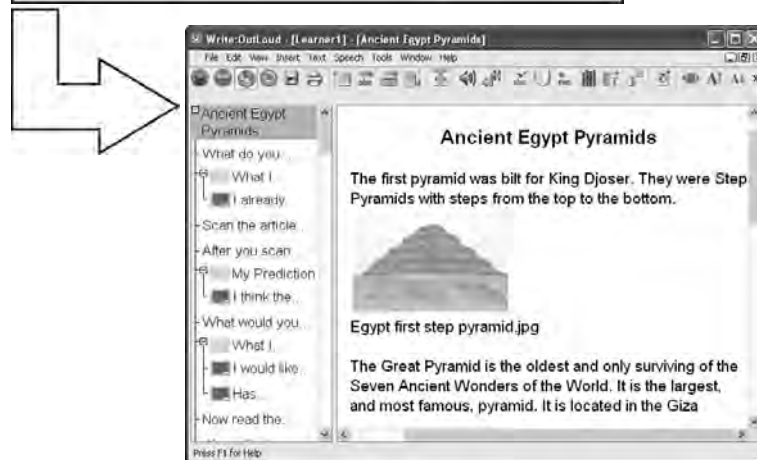
Write, revise, edit and publish

Use supports for help in sentence construction
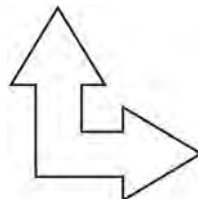
Tip SOLO works seamlessly with programs such as 6+1 Trait®, Writer's Workshop and any other printing or research process.

Develop a strategic approach to planning, organizing and draft writing. Draft:Builder®, a collaboration between Don Johnston Incorporated and researchers at the Education Development Center (EDC) improves learner skills for purposeful and coherent writing.

Draft:Builder's structured framework breaks the writing process into small, manageable chunks so learners stay on task and build effective writing habits. These proven habits improve performance on any writing task including state writing tests in the United States (U.S.).

Improve learners' writing through simple and purposeful supports so they write more and self-assess their work. Learners are motivated to compose, revise and edit independently with SOLO's Write:OutLoud.

Help writers build grammatically correct sentences and guide them to correct phonetic spelling as they type. Co:Writer breaks the failure cycle and helps writers regain confidence and motivation quickly and effectively. For example, English language learners can write words they know in their head but they are unable to pronounce.

Challenge: Meet Standards and Guidelines

Standards aim to articulate the knowledge, skills and understanding all learners should gain in a particular subject, with more specific benchmarks of achievement by grade and/or age level. Standards express what schools value and, therefore, determine what teachers teach and assess (Rose and Meyer, 2002).

Standards are different for the U.S. and the United Kingdom (U.K.). For more information on the standards that apply to you, please see the appropriate section below.

Solution for the U.S.

Standards were developed by national, state and local curriculum writing groups and by subject area experts in the U.S.

Administrators need to be sure their curriculum meet specific state/national standards. You can find your specific state standards on **http://www.statestandards.com/** or the website for your state's Board of Education. The national standards are on **http://www.mcrel.org/compendium/browse.asp/**.

SOLO helps you meet standards in the following categories:
- Writing
- Reading
- Behavior
- Technology
- Content Area

SOLO solutions are described in the following table.

Reading Standard	How SOLO Addresses Standard
Students use reading skills and strategies to understand a variety of informational texts (e.g., textbooks; biographical sketches; letters; diaries; directions; procedures; magazines; essays; primary source historical documents; editorials; news stories; periodicals; bus routes; catalogs; technical directions; consumer, workplace and public documents).	• Build reading skills and strategies by providing access to a variety of informational resources such as curriculum, the Web and topics of interest. • Text read from Internet content or imported text builds knowledge and comprehension from a variety of sources. • Standard research-based strategies are supported with Assignment Templates that ship with the product such as SQ3R.
Students use specific strategies to clear up confusing parts of a text (e.g., pauses, rereads the text, consults another source, represents abstract information as mental pictures, draws upon background knowledge, asks for help).	• State-of-the-art, text-to-speech feature reads aloud text which may be too difficult for learners to read independently. • Text-to-speech feature allows text to be reread as necessary. • Curriculum folders, which ship with SOLO, model drawing upon background knowledge of a topic.

SOLO

Writing Standard	How SOLO Addresses Standard
Students use strategies to compile information into written reports or summaries (e.g., incorporates notes into a finished product; includes simple facts, details, explanations and examples).	• Outline View, Notes View and Draft View model organizing ideas using a basic outline format and writing a draft. • Scaffolds writing a final draft using notes taken with the program during reading. • Use the highlighters to gather key information from reading. • Learners attach notes to key information to add text-to-self connections.
Students use a variety of strategies to edit and publish written work (e.g., eliminates slang; edits for grammar, punctuation, capitalization and spelling at a developmentally appropriate level; proofreads using reference materials, word processor and other resources; edits for clarity, word choice and language usage; uses a word processor or other technology to publish written work).	• Word prediction assists with writing better sentences. • Topic Dictionaries are linked to assignments to provide vocabulary and spelling support. • Considerate scaffolds model proper conventions, guiding writers in editing for mechanics. • Auditory cues alert writers to misspellings and missing punctuation. • Franklin® Spell Checker and Dictionary help learners improve word usage. • Homonym feature helps writers check for similar words to assure correct word usage.
Students use systematic strategies (e.g., anecdotal scripting, annotated bibliographies, graphics, conceptual maps, learning logs, notes and outlines) **to organize and record information**.	• Bibliography Wizard steps writers through the process of creating a bibliography. • Protects against plagiarism as copied text inserted into the outline is set in quotations marks. • Notes and references can be automatically linked to reduce typing time.

Behavior Standard	How SOLO Addresses Standard
Students understand that practice helps people to improve, and that how well a person learns sometimes depends on how she or he does it as well as how often and how hard she or he tries to learn. AND Students understand that many skills can be practiced until they become automatic and that if the right skills are practiced, performance may improve.	• Teachers can work with learners to set goals for improvement. • Differentiated instruction can be provided as teachers create customized learning plans at learners' ability levels (ability to tailor options to meet learners' needs). • Assignments can be customized for the learner or class using pre-made reading content, outlines, preselected text, eText or images.
Students understand preferred working environments. AND Students utilize techniques for overcoming weaknesses.	• Learner preferences can be set to highlight word-by-word or sentence-by-sentence. • Speak feature can be set to speak letters, words, sentences and paragraphs. • Speech rate, pitch and volume can be adjusted for best comprehension. • Program can be customized (colors, fonts, etc.) to meet individual needs. • Map View allows learners to see the big picture in a visual representation to build understanding for visual learners. • Interface and just-in-time supports provide learners with scaffolds every step of the way.

Technology Standard	How SOLO Addresses Standard
Student knows that technology facilitates better communication by providing storage and retrieval of large amounts of data, an easy means of accessing data, a means of processing and displaying data and faster communication among individuals.	• Teacher Central allows teachers to manage learners, classes, create content, assign content and set learner preferences. • All learner preferences can be set in one location to make learning more effective.
Students know that people have invented and used tools throughout history to solve problems and improve ways of doing things.	• Considerate supports include auditory reading support for comprehension and outlines to provide instructional support. • No retyping is needed. Learners highlight text, reorganize it and use it for reading and writing purposes.
Students know that communication systems can transfer information from person to person (e.g., a telephone), **person to machine** (e.g., a person inputting information into a computer) **or machine to machine**.	• Use the talking toolbar to speak icon functions and dialog boxes. • Locked Text provides instructions and feedback for the learner. • Teacher Central can be used to "virtual conference" with learners using the Locked Text feature throughout the reading to writing process.

Solution for the U.K.

Websites for the various curricula are:

For England
- National Curriculum Online - **http://www.nc.uk.net/**
- The Standards Site - **http://www.standards.dfes.gov.uk/**

For Scotland

5 to 14 Guidelines -
http://www.ltscotland.org.uk/5to14/guidelines/

For Wales
> Welsh Assembly Government Education and Skills - **http://new.wales.gov.uk/topics/educationandskills/**

For Northern Ireland
> Department of Education Programmes of study and attainment targets - **http://www.deni.gov.uk/index/80-curriculumandassessment_pg/80-programmes-of-study.htm**

Challenge: Provide Testing Accommodations

Testing accommodations are changes in the way a test is administered or responded to by the person tested. Accommodations can include changes to the following:

- **Presentation format** (e.g., read aloud, large print, etc.)
- **Response format** (e.g., mark answers in a book, etc.)
- **Timing and scheduling of the test** (e.g., extended time, frequent breaks, etc.)
- **Setting and environment** (e.g., study carrel, learner's home, separate room, etc.)
- **Equipment and material** (e.g., amplification equipment, manipulatives, etc.)

These changes are intended to offset or correct for distortions in scores that may be caused by a learner's disability (Elliott, Kratochwill, & Schulte, 1999; McDonnell et al., 1997; Pitoniak & Royer, 2001).

As testing standards vary by state and district in the U.S., learners may be able to complete their testing electronically (e.g., using Write:OutLoud). A learner's IEP committee has the potential to establish many types of accommodations and our teachers need to be prepared to meet these accommodations.

To find out if your learners are eligible for electronic testing, refer to your individual State Board of Education, Assessment Division.

Reading Solution

SOLO is used for reading assessment. Learners can have content (e.g., social studies, math and writing) read aloud, as opposed to having to read a paper copy. Having the text read aloud by SOLO has the following advantages:

- You measure the content of the *assessment*, not the reading *processes*.
- The voice used in SOLO has no influential intonations or emotion.
- Having the text read aloud by SOLO frees up the time it would take a teacher, who can be spending time elsewhere.
- Learners can work on their test independently, not having to meet a standardized schedule.

Writing Solution

SOLO can be used for writing assessment. Back in the classroom, learners can use SOLO supports such as the Spell Checker, Homonym Checker and the Dictionary as they write. For state assessments in the U.S., however, these features can be turned off.

Tip Make sure your teachers are documenting the use of SOLO in learner IEPs so that it can be used as an accommodation in state assessments in the U.S.

Challenge: Use NIMAS Files and Electronic Text Readers

Now more than ever, teachers have access to more and more books and supplemental materials over the Internet and in electronic format. No longer do teachers need to spend extra time re-writing or reproducing materials. They use the Internet and electronic resources to help create scaffolded assignments for their learners.

Solution

SOLO makes it easy for teachers and learners to open any Internet site and most electronic textbooks. Once the Internet site or electronic textbook is open, they can use the material to create an outline, notes and bibliography.

An example of one of the electronic formats that SOLO can read is National Instructional Materials Accessibility Standard (NIMAS) files. In addition, SOLO has the ability to open many other file formats.

Following is an example of what an assignment outline might look like using **The Story of Anne Frank** NIMAS file:

Research

The National Reading Panel Report (2000) identifies eight categories of comprehension instruction that have firm scientific evidence for improving reading comprehension.

1. **Story Structure** - Readers learn to ask and answer who, what, where, when and why questions about the plot, and in some cases, map out the timeline, characters and events in stories.

2. **Comprehension Monitoring** - Learners assess their understanding during reading and repair problems in understanding as they arise.

3. **Graphic Organizers** - Readers represent graphically (write or draw) the meanings and relationships of the ideas that underlie the words in the text.

4. **Question Answering** - Readers answer questions posed by the teacher and make inferences about concepts in the text. Learners are given feedback about their answers.

5. **Question Generation** - Readers generate questions about who, what, where, why, and how pertaining to the text.

6. **Cooperative Learning** - Readers work together to learn comprehension strategies in the context of reading.

7. **Summarization** - Readers identify and write the main or most important ideas that integrate or unite the other ideas or meanings of the text into a coherent whole.

8. **Multiple Strategy Instruction** – Readers learn to use a set of reading comprehension strategies at appropriate times when needed.

The following paragraphs describe how SOLO addresses these categories.

Story Structure

Read:OutLoud provides story structure Assignment Templates, which assist the reader in identifying main constructs and retaining them within the nodes of the outline. This outline forms a mental representation that can be arranged and modified to clarify understanding. This methodology is supported by van den Broek and Kremer (2000) who explain, "When reading is successful, the result is a coherent and usable mental representation of the text. This representation resembles a network, with nodes that depict the meaningful relations between the elements." Story structure Assignment Templates help learners develop a fundamental understanding of text architecture. Repeated use while reading helps learners internalize these structures, which become effective reading habits over time.

Comprehension Monitoring

With SOLO, learners can independently link comments to prompted questions within the text or one of the included Assignment Templates, which directs learners and guides them in their comprehension monitoring. Cognitive awareness is built as learners add information to their Assignment Template, organize information to clarify their understanding and repair breakdowns in their comprehension.

Trabasso and Bouchard (2002, pg. 179) analyzed 20 studies on comprehension monitoring and found that "Readers who were trained in comprehension monitoring improved on the detection of text inconsistencies, on memory for text, and on standardized reading comprehension tests."

Graphic Organizers

"The main effect of graphic organizers appears to be on the improvement of the reader's memory of the content that has been read" (National Reading Panel, 2000, pg. 4-45). Learners view their SOLO Assignment Templates and any information they have added in a graphic organizer representation. This graphical representation directly matches the conceptual mental representation. "When reading is successful, the result is a coherent and usable mental representation of the text" (van den Broek & Kremer, 2000, pg. 14).

Trabasso and Bouchard (2002, pg. 179) reviewed eleven studies that used graphic organizers. They found that "teaching readers to use systematic, visual graphs in order to organize ideas benefited readers in remembering what they read and improved reading comprehension and achievement in social studies and science."

Question Answering

Question answering is at the heart of knowledge retrieval and forms the basis for most classroom instructional practices (Marzano, Pickering & Pollock, 2001). Assignment Templates contain questions to guide learners as they read the text. They can also be customized to give a variety of cues and questions to support any classroom text. In SOLO, learners can highlight information related to the answer with the highlighter or they can write a note with their own summarization of information that relates to the question.

Trabasso & Bouchard analyzed over 17 studies on questioning and answering and found that "instruction of question answering leads to an improvement in memory for what was read, in answering questions after reading passages, and in strategies for finding answers" (Trabasso & Bouchard, 2002, pg. 181).

Question Generation

SOLO facilitates question generation through the following:

- Cueing learners with questions that help create mental connections with the text.

- Supporting learners with Assignment Templates such as KWL and KWRL which prompt learners to make text connections.

- Providing note-taking, highlighting and organizational frameworks where learners can generate questions and test them against the text. This type of question generation requires learners to actively engage in the text and have a clear understanding of it.

Learners can ask questions, take notes or write personal reflections about the text. "The process of explaining their thinking helps learners deepen their understanding of the principles they are applying" (Marzano, Pickering & Pollock, 2001, pg. 105).

Summarization

With Assignment Templates, learners are guided to identify important concepts and supporting details. As learners read in SOLO, they identify important information within the text, which they add to their Assignment Template. Learners can organize information within their Assignment Template to create an informational outline. This process helps learners clarify their understanding.

Analysis of six independent studies showed an average gain of 34% in achievement scores resulting from summarization instruction (Marzano, Pickering & Pollock, 2001).

"Instruction of summarization improves memory for what is read, both in terms of free recall and answering questions" (Trabasso & Bouchard, 2002, pg. 182).

Multiple Strategy Instruction

SOLO is structured to help learners become self-directed in their use of multiple strategies while reading. Learners can quickly and easily choose appropriate Assignment Templates among the multiple strategies presented. These strategies should be taught one at a time and applied to a variety of reading tasks (Keene & Zimmerman, 1997). Readers improve comprehension in Read:OutLoud by mastering a set of these reading strategies and using them in the context of reading curriculum-based texts and the Internet. Repetitive strategies will build reading habits, which generalize to other reading tasks.

The National Reading Panel (2000, pp. 4-51, 52) found that "when used in combination, comprehension strategies produce general gains on standardized comprehension tests."

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SOLO

Administrator Implementation Checklist

The following checklist itemizes what you need to do to get started with SOLO and then to successfully use it. Since teachers and learners change each school year, it is good practice to review this list each school year or whenever the SOLO user population changes.

BEFORE using SOLO, did I …

- ❏ Set goals for what SOLO will accomplish?
- ❏ Determine how SOLO can be used to meet the district initiatives?
- ❏ Set a timeline for results (e.g., train five teachers by September 30; train five more by October 31; do formative assessment by end of November, etc.)?
- ❏ Identify who will be using SOLO and where it should be installed?
- ❏ Schedule Professional Development for teachers?
- ❏ Allow teachers enough time to practice?
- ❏ Set up self-directed learning sessions?
- ❏ Ask teachers to complete **Getting Started** tutorials?
- ❏ Arrange for training to get additional skills needed (e.g., using Windows, scanning text, etc.)?
- ❏ Work with the district to align systems such as Internet access, network, server, etc.?
- ❏ Make sure there are systems in place to access resources such as eText and graphics?

AFTER starting to use SOLO, did I …

- ❏ Document the use of SOLO for accommodation purposes so that it can be used on state assessments in the U.S. if necessary?
- ❏ Establish key contacts for SOLO in my district? (Choose teachers who know SOLO very well.)
- ❏ Set up on-going study groups for teachers to share their knowledge of SOLO?

Appendix: What is SOLO?

As a tool, technology can help teachers provide needed supports for diverse readers, including instructional reinforcement and opportunities for guided practice (Biancarosa, G., & Snow, C. E., 2004, pg. 19). SOLO is the software tool specifically designed for diverse learners for instructional reinforcement and guided practice.

SOLO contains four learning tools (Read:OutLoud, Draft:Builder, Write:OutLoud and Co:Writer) that help learners develop strategies in the following areas:
- Reading comprehension
- Writing
- Planning
- Organizing
- Revising
- Editing

Individually, each of these tools focuses on building skills in one aspect of literacy. Supports such as high-quality text-to-speech, which increase independence, are included (Williams, 2002). When used together in the SOLO environment, these tools integrate to have an even greater impact on learner outcomes across the reading and writing continuum.

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