Technology Supports for Struggling Writers
Assistive Technology in Texas Schools Series - Available at www.texasat.net

Objectives: Participants will learn about:
1. A framework for the writing process
2. Research-based, technology supported strategies to assist struggling students
3. Available technology resources that will assist those struggling writers

> *"If students are to make knowledge their own, they must struggle with the details, wrestle with the facts, and rework raw information and dimly understood concepts into language they can communicate to someone else. In short, **if students are to learn, they must write."***
> *National Commission on Writing*

Effective Elements of Writing Instruction   *(Executive Summary, Writing Next report)*

1. Writing Strategies - teaching students strategies for planning, revising, & editing

2. Summarization - explicitly & systematically teaching students how to summarize texts

3. Collaborative Writing - instructional arrangements in which students work together to plan, draft, revise, & edit their compositions

4. Specific Product Goals - assign students specific, reachable goals for the writing

5. Word Processing - computers and word processors as instructional supports for writing assignments

6. Sentence Combining - teaching students to construct more complex, sophisticated sentences

7. Prewriting - activities designed to help them generate or organize ideas for their composition

8. Inquiry Activities - analyzing immediate, concrete data to help them develop ideas & content for a particular writing task

9. Process Writing Approach - interweaves a number of writing instructional activities in a workshop environment that stresses extended writing opportunities, writing for authentic audiences, personalized instruction, & cycles of writing

10. Study of Models - opportunities to read, analyze, and emulate models of good writing

11. Writing for Content Learning - uses writing as a tool for learning content material

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Instructional vs. Compensatory Interventions

Instructional Interventions: Increase student's performance through adding skills to the student's own skill base

Compensatory   Interventions: Provide a means to complete a task such that, without the intervention, a student would not be able to complete the task at the expected level
- Increase performance without necessarily increasing the skill base of the student
- Are uniquely matched to the student's characteristics and needs

Characteristics of Writers*: "Writing well is not just an option for young people – it is a necessity. Along with reading comprehension, writing is a predictor of academic success and a basic requirement for participation in civic and life and a global economy…Because the definition of literacy includes both reading and writing skills, poor writing proficiency should be recognized as part of this national literacy crisis." (Graham & Perin, 2007)*

Characteristics of Skilled Writers	Characteristics of Struggling Writer
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•	•
•	•
•	•

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Struggling Writers Characteristics

Difficulty with…
- Adding detail
- Word choice
- Handwriting/mechanics
- Identifying errors
- Correcting errors
- Fluency:

Do not see themselves as writers, therefore…
- Lack procedural knowledge about the writing process
- Have difficulty selecting topics and generating ideas
- Are unaware of writing for an audience
- Write to put words on paper - not writing for meaning
- Need strategies to self assess their own work

Effective Writing Instruction for Struggling Writers
- Provides a classroom climate that motivates students to write
- Emphasizes the writing process
- Provides specific instruction & strategies to meet their needs
- Continually monitors student progress

Create a Classroom Climate that Motivates Students
- Invite students to learn
- Provide sufficient time with quality, needs-based instruction
- Support student learning through scaffolded instruction
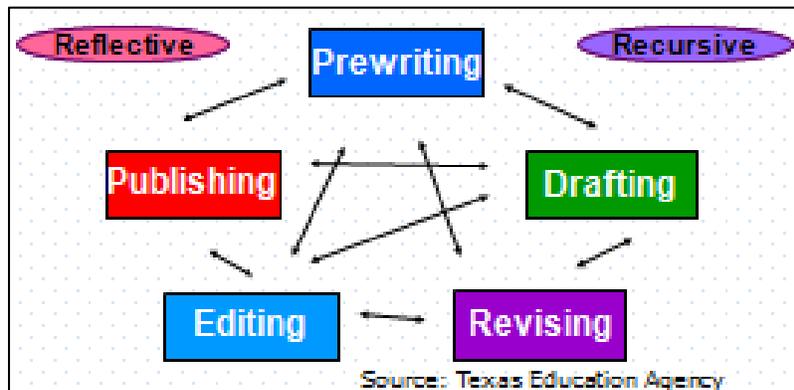- Base all instruction on the TEKS

Using the Writing Process Model
- Shifts emphasis from a *product-driven* to a **process-driven** approach
- Demonstrates & reinforces the process all writers use as they write
- Provides a basis for effective writing instruction
- Helps develop positive attitudes towards writing

Using the Writing Process with Struggling Writers
- Allows students to be involved in writing regularly, for meaningful purposes and real audiences
- Focuses on meaning first, then skills in the context of meaning
- Accommodates differentiated instruction which allow students to work at their own level and pace
- Involves collaboration during peer:peer & teacher: student conferences
- Provides opportunities for generalization and transfer of learning
- Gives students control of their writing
- Helps establish independent problem-solvers
- Most importantly, **using the writing process creates writers**

Stages in the Writing Process

Source: Texas Education Agency

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Important Considerations…. Strategies for Teaching Tool Use

An effective instructional sequence would include:
- **Explanation** with problem definition
- **Modeling** with interactive teaching
- **Guided practice** with substantive facilitation
- **Independent use** with teacher conference

Evidence of Effectiveness
- No one feature provides all the support needed by struggling writers - All features do not affect all writing variables directly
- Effectiveness is affected - By the writer's basic skill levels
    - By the writer's operational competence with the tool

Access to Writing Process Tools for Students with Disabilities
- Students with Print Disabilities
- Students with Vision Impairments
- Students with Physical Disabilities
- Students with Cognitive Impairments

Some Alternative Access Features:
- Enlargement, Color/Font Changes for Screen
- Speech/Audio feedback for Text, Instructions, Editing & Screen Reading
- Picture/Image Support for Menus, Directions or Keyboards
- Alternative Keyboard, Switch Access, or Recording for Text Input & Editing
- Braille for Keyboards, Editing and Text Output

Prewriting   "Planning and organizing"

- Establish a purpose for writing (the writing task)
- Select a topic and identify the intended audience
- Generate ideas
- Organize ideas according to text structure

Knowledge & Strategies Used in Prewriting by Competent Writers
- Knowledge of text structures
- Strategies for generating topic and ideas
- Strategies for organizing ideas

Technology for Prewriting Can Also Provide Reminders of
- What information or elements must be present (e.g., goal, topic, text elements, ideas, details, etc)
  Assistance with How to generate, select and/or organize information or elements

- Effective Features of Tools Supporting Prewriting
  Provides prompts related to the:
    o **Purpose** of the composition (e.g., to tell a story, to explain, to compare, etc.)
    o **Structure** of the composition (e.g., introductory sentence, support details, concluding sentence, etc.)
    o **Genre** of the writing (e.g., the five elements of a story)
  Prompts may take the form of:
    o **Instructions**
    o **Questions**
- Use of visual-graphic mapping tools to:
    o Organize groups of information (charts, maps or web)
    o Enhance representation of logical sequencing
    o Ordinate relationships

- Record and manipulate ideas
- Produce a printed plan for the student follow
- Produce digital files which guide the student's writing
- Provide text-to-speech support

Prewriting Technology Supports for Struggling Writers

Tools to Explore:
- Graphic Organizers
  - Prewriting supports
    - Provides a means to organize thoughts
    - Can assist in the organization of form (e.g., creating a paragraph)
    - Creates a reference through the writing process
- Writing Checklists
  - Prewriting supports
    - Provide prompts relating to purpose, structure, and/or genre of composition
  - Revision and/or editing supports
    - Provide prompt relating to word choice, content, and/or conventions used in the composition
    - "Think Sheets"
    - Writing Strategies (SRSD Instruction)
    (P) Pick a topic,
    (L) List your ideas about the topic,
    (E) Evaluate your list,
    (A) Activate the paragraph with a topic sentence,
    (S) Supply supporting sentences, and
    (E) End with a concluding sentence and evaluate your work.
- Digital planning & organizational tools
- Digital mapping tools

Drafting "Preparing the Initial Composition"

While prewriting activities and tools can assist the writer during initial drafting, the writer must still juggle:
- Planning what to say and how to say it
- Selecting words, sentences, and text structures
- Producing the text
- Monitoring his or her writing in order to revise "on the fly"

Struggling Writers Tend to:
- Spend too much time on producing legible handwriting and proper spelling
- Lose track of the ideas, logical sequences and details
- Produce papers that are unreadable and of poor quality
- Do not write what they can say

Important Thing to Consider…. Is Faster Better?
- The goal of writing support: Increase the "productivity" of the writer
- Productivity in AT has been defined as Quantity + Quality
$$\frac{Quantity + Quality}{Time}$$

Productivity Increases - When in the same time or more time,
- Legibility, spelling accuracy, capitalization, punctuation increases
- The variety of words increases
- The number of words or sentences written increases
- The number or quality of ideas, details, text elements improves

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Drafting Technology Supports for Struggling Writers
Effective Tool Features for Drafting
- Ability to…
  o Create print via a keyboard
  o Provide word cues
  o Provide word prediction
  o Create text via speech recognition
- Access to…
  o Spell check
  o Text to speech supports

Types of Tools for Drafting Support
1. Drafting & planning tools
2. Keyboard text entry tools
3. Word cue tools
4. Word prediction tools
5. Speech recognition tools

Digital Planning & Organization Tools - Drafting Supports
- Word/phrase "ideas" from prewriting can serve as sentence starters or provide vocabulary for drafting
- Digital outline files can be used to generate a first draft when more extensive written information was produced during planning & organization
- Drafting support can be done through 'copy and paste' or 'click and drag' or an "auto create" function

Keyboard Text Entry - Drafting Supports
- Provide support in legible print production
- May have text-to-speech support
- May have grammar check support
- May provide automatic capitalization and spelling correction
- May provide word cues
- In general, operational competence of students affects impact of word processing on writing
- Functional rates of word production can be obtained, especially when keyboarding instruction is provided
- Compositional length is increased with prior experience or instruction in WP or keyboarding
- Initial student skill levels affect outcomes
  o Students with higher initial spelling errors improve more in draft accuracy than do those with low initial rates
  o Students with low initial composition length when handwriting (<50 words) write longer compositions using the word processor

Word Cues - Drafting Supports
- Used with keyboard text entry
- Present lists of words or phrases
- Lists are generated from word dictionaries - Dictionaries vary type and size from small single lists to large multiple lists
- Additional feature - Customizable to add topic-specific lists or lists of "trouble" words

Word Prediction - Drafting Supports
- Dynamically changes the lists as more letters are typed
- Produce lists of words using
  o Word frequency, Recency of use
  o Grammatical correctness
  o Commonly associated words and phrases

Speech Recognition - Drafting Supports
  o Permits drafting by dictation
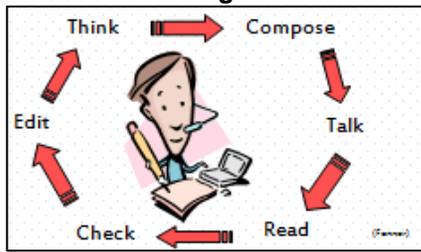 o Allows production of legible print
  o May have text to speech support

- Speech Recognition Requires…
  o Training process to "learn" the student's voice
  o Consistent voice pattern
  o Understanding the process of writing

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The Process of Writing with Voice…

Effectiveness of Speech Recognition
- Limited evidence base
- Recognition accuracy may reach only 90% after sustained training
- Frustration with correction process may lead to rejection or abandonment
- Outcomes on writing

Revising & Editing "Revising & Editing the Draft"

Two Complementary Processes
- **Revising**
  - Clarifies meaning and expands ideas
  - Makes the writing more interesting and understandable to the reader
- **Editing**
  - Correction of errors in the conventions of writing: spelling, capitalization, punctuation, & grammar

Effective Features of Tools Supporting Revising
Assist the writer to:
- Review sentences for meaning
- Review passages and paragraphs for:
  - Detail and interest
  - Clarity and logic
  - Content elements
- Make revisions
- Reviewing meaning
  - Screen display of legible text
  - Text-to-speech voice output (Sentences, paragraphs, entire composition)
- Review prompts
  - Content prompts
  - Procedural prompts (instructions or questions)
- Word-level revisions
  - Dictionaries, word lists
  - Thesaurus
- Sentence and paragraph-level revisions
  - Text insertion, deletion, and movement
- Facilitating the detection of errors
  - Screen display
  - Text-to-speech voice output
- Signaling the presence of an error
  - Visual signals
  - Auditory signals
- Providing options for correction
  - Lists of possible corrections
  - Voice output review of options
- Automatic detection and correction of errors during transcription
  - Auto-correction of common spelling errors
- Auto-prevention of errors during transcription
  - Auto-insertion of capitalization & spacing
  - Auto-insertion of correct grammatical form in word lists

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Revising & Editing Technology Supports for Struggling Writers
Tools to Explore:
- Dictionary / Thesaurus
  - o Personal / Custom Dictionary
  - o Portable Dictionary/Thesaurus
  - o E-Reader/Writer Dictionary/Thesaurus
- Highlighting
  - o Highlighter Pens/Tape
  - o E-Reader/Writer Study Supports
- Checkers
  - o Spelling Supports
  - o Grammar Supports
  - o Homonym Supports
- Good Writing Checklist (from the Fusion – Writer Learning Systems)
  - o I capitalized words correctly
  - o I used correct punctuation
  - o I used the Spell Checker to check my spelling
  - o I used exact and interesting language
  - o I checked my writing carefully for sentence fragments and run-ons
  - o I read my writing carefully and looked for ways to make it better

Publishing "Sharing writing with audiences"
- Gives purpose for writing
- Acknowledges writing as genuine communication
- Is an effective strategy for motivating the writer

Effective Features of Tools Supporting Publishing
- Provide formatting options to improve interest, clarity or organization
- Provide layout options appropriate to writing genre
- Provide for the insertion of illustrations, graphics, graphs, etc
- Provide for sharing of writing
  - o Among peers
  - o Among other audiences

Publishing Technology Supports for Struggling Writers
Tools to Explore:
- Recording
  - o Digital Tape recorder
  - o Audio Features of App/Software
- Compile writings to create a book
- Free Websites/Blogs for Posting Student Work

In conclusion…
1. Use of Effective Strategies
2. Stages in the Writing Process
   - Prewriting
   - Drafting
   - Revising
   - Editing
   - Publishing
3. Access for All Students to Writing