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Chapter 2. "How Reading Works: the Building Blocks of Fluency and Comprehension"

This chapter describes the lower level cognitive processes required for reading. These include:
- *word-recognition*
- *syntactic parsing* (using grammatical information)
- *semantic proposition encoding* (building clause-level meaning from word meaning and grammatical info)

These are all carried out as part of *working memory*, the framework in which cognitive processing and knowledge resources are integrated for comprehension. (p. 22)

1. Word Recognition

One of most important factors in reading comprehension. 250-300 wpm = fluent reading.

Fluent word recognition demands (p. 23):
- Orthographic processing
- Phonological processing (24)
- Semantic and syntactic processing (25)
- Lexical access (26)
- Morphological processing (27)
- Automaticity and recognition of above processes

Word recognition requires:
- automaticity
- well-developed lexical entries
- large lexicons (for fluent readers)

Context effects (p. 28)

Context provides little help for fluent readers because it takes some time to register and become available – useful in case of difficulties. In learning situations it can be helpful in slow disambiguation of words though usually not very accurate and needs confirmation — <u>not preferred way to recognize words.</u>

2. Syntactic Parsing (p. 29)

whereby we access meaning information from word and sentence structure (word order, tense, prepositions etc). More complex and ambiguous syntactic structures have impact on reading processing time (30).

Syntactic parsing is required to form **semantic proposition units** as they depend on isolating main verb, subject position, object position etc.

3. Meaning Proposition Eencoding (p. 30)

Semantic propositions = the building blocks of text comprehension, a network of small packets of info linked together in a meaning unit appr. equivalent to phrase and clause units

The number of proposition units predicts how long it will take to process a sentence.

Working Memory (p. 32)

Long-term memory is the total set of permanent records of our experience and efforts to understand our environment. Working memory is the information active for processing as well as the processing directions
themselves; both active storage and processing functions. It is a limited capacity system that maintains info actively for only 1-2 seconds without mental rehearsal and reactivation

IMPLICATIONS FOR INSTRUCTION
The purpose of instruction is to help people learn to read so that they can ignore the reading process and focus on the content.

Learners need to efficiently recognize large number of words; this requires:
1. large recognition vocabulary
2. continual practice (through:
        a. extended reading
        b. attention to letter-sound correspondence
        c. words and word parts
        d. rapid identification of words
        e. fluency activities (paired reading, reading w. CD, rereading)

Efficient word recognition = full word recognition (full form, full orthography) rapidly and
        accurately. This will lead to automaticity. Moving beyond word-by-word recognition
        requires a lot of reading of extended texts that are not frustrating

Key skills-developing goals with older L2 learners:
        1. build word-recognition
        2. develop large recognition vocabulary

Basic grammar required (p. 38)
When grammar features need to be focused on they should be introduced first in the text being read. Extended reading practice will reinforce basic grammar knowledge and expose readers to more complex grammar gradually.

Chapter 3: "How Reading Works: Comprehension Processes"
This chapter describes higher level cognitive processes required for reading comprehension. These include certain abilities:
- building a text model of reader comprehension
- building a situation model of reader interpretation
- a set of reading skills and resources under command of executive control in working memory (strategies, goals, inferences, background knowledge, comprehension monitoring)

We did not discuss this chapter in our meetings so I have just included a summary of the '**Implications for Instruction**' section of the chapter:

Reading comprehension requires many types of component skills. Readers need to know how to (56):
- recognize and process discourse signals of various types to make links across semantic units and build comprehension networks

- recognize markers of text information overlap and engage inferencing that maintains coherent interpretation of the text.
- draw on background knowledge as appropriate
- monitor comprehension
- engage in strategic processing w. more difficult texts and more complex goals
- set appropriate goals for reading comprehension

Higher-order processes are available to all readers from the onset of literacy learning, but the ability to direct attentional capabilities as part of reading requires instruction in:
- recognizing discourse structure and signaling in texts
- applying comprehension strategies at appropriate level of coherence
- synthesizing and evaluating through strategic processing
- monitoring comprehension as well as setting and changing goals

Also requires
- reading curricula that assume a long-term developmental path toward reading fluency
- large amount practice

Chapter 10: "Building Main-Idea Comprehension" (pp.198-219)
This chapter focuses on how grammar and strategy instruction improves reading comprehension.

MI-comprehension requires:
1. identifying main ideas
2. integrating main ideas into text model of reading (chapter 3)
3. developing appropriate situation model of reader interpretation (chapter 3)

MI-comprehension also involves:
1. knowledge of basic grammar
2. effective comprehension strategies
3. processing abilities
4. awareness of discourse structure
5. large receptive vocabulary knowledge

Grammatical structures serves discourse-communication needs, signals how to interpret sentences and integrate them into text-meaning network = grammatical knowledge is a **network of cueing systems**. (p. 202)
- Grammatical word order constrains alternative meaning potential
- Grammatical structure identifies part-of-speech categories for words; semantic roles on noun phrases in relation to verbs; relations between phrasal and clausal units for comprehension processing
- Grammatical structure distinguishes main from subordinate information; signals given and new information in the sentence
- Grammatical information helps us identify a) major referents in the text (determiners, relative clauses etc); b) continuity and reappearance of referents: c) continuation or shift of events via tense/aspect modality, location information.
- Grammatical information specifies and sharpens information communicated; constraints ambiguity and interpretation

- Grammatical information indicates authors' attitudes towards events and ideas (prep phrases, adverbial phrases, lexical choices)

Gernsbacher: Structure Building Model of discourse comprehension (p. 204)
Explains how textual structure is built. As any clause is processed it contributes to text-model network in one of three ways:
1. it may lay a first foundation for a network structure (often first clauses of paragraphs)
2. map new information onto existing structure (clauses that have overlapping material and continue cueing systems (same tense, topic, setting etc.))
3. shift to building a new network structure

These processes are supported by structure suppression and structure-elaboration mechanisms.

Givon: Grammar cueing system (p. 205)
Explains how grammar signaling assists in structure-building operations. Grammar provides cues for building discourse cohesion
1. Local Coherence Systems
a. Referent tracking (pronoun linking, definite article inference)
b. Temporal tracking (same time perspective or shift in time)
c. Locational tracking (same or different)
d. Event tracking (same continuing or new beginning)
e. Modality tracking (certainty of info, attitude of speaker)
f. Frame/script tracking (setting the same or changes)
2. Global Coherence Systems:
a. Adverbial transition cues (advance warning of shifts about to occur)
b. Vocabulary-driven processes (words that signal discourse shifts)
c. Cues for the generation of new discourse units (marked structures, new paragraphs, new sections, new events)

Gerbacher's model provides processing framework for Givon's ongoing cueing

With informational texts and in academic settings MI-comprehension demands attentional processes, metacognitive awareness, and **strategic support** – scaffolded support (206)

Students should
- develop metacognitive awareness of what good readers do
- learn how to engage those skills (strategies)

Comprehension instruction = Teaching Ss effective strategies while they are trying to build MI-comprehension and joining the two goals through scaffolded discussion.

Effective Reading Comprehension Strategies (pp 209-215)
1. Summarizing (no evidence in L2)
2. Forming questions (no evidence in L2)
3. Answering questions and Elaborative Interrogation (=eliciting reflective student answers)
4. Activating prior knowledge (useful as long as the correct prior knowledge is activated)

(High-level Ss may work harder with less prior knowledge and learn more)
5. Monitoring comprehension (really a metacognitive process) (little evidence in L2)
   Comprehension monitoring strategies:
   a. has a reason for reading and is aware of it
   b. recognizes text structure
   c. identifies important and main idea info
   d. relates text to background knowledge
   e. recognizes relevance of text to reading goals
   f. recognizes and attends to difficulties
   g. reads carefully
   h. clarifies misunderstandings
6. Using text-structure awareness
   Includes recognizing and attending to a number discourse-signaling systems:
   a. levels of importance of information
   b. headings and subheadings
   c. paragraphing choices
   d. co-referential connections across ideas in a text
   e. relations of part-to-part and part-to-whole information
   f. transition forms and signal words
   g. patterns for organizing text information (cause and effect; problem and solution;
      comparison and contrast; description; classification; analysis; argument and evidence;
      procedural sequence; chronological ordering)
7. Using visual graphics and graphic organizers (recognizing text structure and differentiating
      main idea/supporting idea (Chapter 12) (shown to be efficient in L2)
8. Inferencing (major difference between good and poor readers; closely connected to other processing
skills thus hard to identify) Important aspect of inference-forming skills: reference-tracking while reading
(pronouns referring back to a noun in the same sentence. Usually further back. **Anaphoric reference
tracking**: pronouns, direct repetition, synonyms, paraphrases, demonstratives, definite article)
[9. Mental translation (strategy only for L2 reading) Useful for lower level students – builds more accurate
understanding.

IMPLICATIONS FOR INSTRUCTION (p. 216)
Implications for grammar instruction:
   ● some directed grammar instruction, esp. at lower levels
   ● fluency and automaticity with syntactic processing required
   ● extensive exposure and practice required

Teacher should read materials in advance to determine which texts favour certain grammar-awareness
activities.

Many ways to teach grammar - recognition and awareness of structure are key to reading course. More of
a discourse-analysis activity than decontextualized structural activity.

Implications for strategy instruction
   ● Many different strategies
   ● Learning strategy requires persistent effort with lots of recycling
   ● Comprehension monitoring is important
   ● S should be taught directly through modeling and simultaneously with text comprehension.

- SI should be part of negotiated interaction over texts.

If done while reading a text, reading strategy instruction = reading comprehension instruction. Should thus be explored in a **pre-, during- post-reading framework.**

Specific strategies should be introduced and practiced, one at a time, building to a repertoire of 10-15 over the course of a semester or a year. Recycling is important. Keep a chart of strategies visible always.

Instruction should include modeling, scaffolding, guided practice, and independent use of strategies so Ss develop internalized self-regulation of comprehension processes.

Appendix: 20 Major Reading Strategies (p. 218):
A. Empirically validated
>   Activating prior knowledge
>   Answering questions and elaborative Interogations
>   Constructing mental images
>   Forming questions
>   Making associations (mnemominic support)
>   Monitoring
>   Previewing
>   Summarizing
>   Text-structure awareness and story grammars
>   Using graphic organizers

B. Indirectly used reading strategies used in validated multiple-strategy instruction
>   Clarifying
>   Establishing goals for reading
>   Inferencing
>   (Mental) translating
>   Paraphrasing
>   Predicting
>   Rereading
>   Reading aloud (for fluency, for modeling)
>   Synthesizing information
>   Taking notes

Chapter 11: "Becoming a Strategic Reader" (pp. 222-242)
This chapter describes what a strategic reader is and does, and how to become one.

The strategic reader
- automatically and routinely applies combinations of strategies depending on reader goals, reading tasks, and strategic processing abilities
- is aware of her comprehension effectiveness in relation to reading goals
- applies sets of strategies appropriately to enhance comprehension

There are three major issues surrounding reading strategy instruction:
 1. Relationship between skills and strategies
"A skill is a strategy that has become automatic" – the goal of strategy instruction

2. Relationship between metacognition and strategies (p. 222)
With respect to reading we talk about 1) metacognitive awareness (what we know), and 2) metacognitive control/regulation (what we can do, using strategies) of planning, monitoring, repairing, revising, summarizing and evaluating.

There are no distinct strategies for metacognition, rather strategies are used for metacognitively aware purposes.

Metacognitive processes for comprehension:
1. Set (re-set) reading goals
2. Expect to build a coherent interpretation of a text and establish the main ideas of a text
3. Make inferences as necessary in line with our goals
4. Monitor comprehension to maintain coherent interpretation and awareness of main ideas
5. Recognize when we are losing coherence of interpretation or the reading output does not match our reader goals
6. Summarize the main ideas of texts
7. Engage various strategies to help repair an incoherent interpretation
8. Evaluate the reading input in various ways beyond simple understanding

3. The role of metalinguistic awareness in reading comprehension (p. 225)
A strategic reader has metalinguistic awareness that supports comprehension strategies as well as a metacognitive control for using these strategies.

ACTIVE ENGAGEMENT WITH READING (p. 228)
1.Good readers engage actively with (academic) texts
Before reading they make a reading plan, know why they are reading, preview the text, activate prior knowledge, form predictions about the text (list p 228)
After the reading they check their understanding, form mental summaries; resolve difficulties; reflect on information; evaluate the information; integrate the information in long-term memory.

(Only when a problem is encountered are strategies applied consciously)

2. Good readers apply combinations of strategies fluently
A good reader routinizes strategies that consistently work well. This allows for the combination of strategies since attention can only be devoted to one activity at a time. Routinization thus also frees up attention for other processes. Routinization is accomplished through extensive practice and consistent use. When routine responses are not enough, metacognitive awareness is required.

RESEARCH ON MULTIPLE-STRATEGY INSTRUCTION
Many researchers agree that teaching repertoires of reading strategies improves comprehension and recall. 4-8 strategies, or more over a longer period of time.

Multiple-strategy approaches to strategy instruction (pp. 231-238):
1. Know-Want to know-Learned (KWL)
    Activating prior knowledge, planning, goal setting, monitoring for key points, evaluating
    text info, relating text info to reading goals [limited empirical support]
2. Experience-Text-Relate (ETR)
    Activating background knowledge, predicting, monitoring comprehension, forming
    questions about the texts, evaluating the text, reflecting on relation btw text info and
    personal experience [some empirical support]

3. Question-Answer-response (QAR)

    Ss are trained to answer qs on directly available info, info to be inferred, info drawing on background knowledge. Awareness of how to answer qs and generate own qs.

4. Directed Reading and Thinking Activities (DRTA)

    Relating background knowledge to text, goal-setting, predicting (at stopping points throughout texts) [reasonable empirical support]

5. Reciprocal Teaching

    Ss trained to use four strategies (forming qs, predicting, clarifying info, forming summaries). Lots of support from research, but designed for use with groups rather than classes

6. Collaborative Strategic Teaching (CSR)

    Ss working in groups activate prior knowledge, make predictions, monitor comprehension difficulties, clarify info, restate important ideas, summarize, form qs. Each student assigned a responsibility. [good support, good for L2 and content-based learning]

7. Self-Explanation Reading Training (SERT)

    Effort by cognitive psychologists interested in in discourse processing. Good results w. university Ss. A certain number of strategies are taught during a few hours (comprehension monitoring, paraphrasing, elaboration, predicting, bridging/synthesizing), then employed regularly by Ss.

8. Direct Explanation

    Makes explicit the processes by which good readers engage in text comprehension using direct modeling of reading strategies by teachers through thinking aloud while reading to Ss. etc. (p 234)

9. Questioning the Author

    T and Ss form qs about the text to the invisible author in order to promote discussion around text comprehension. (List of qs p 236) [research promising but limited]

10. Transactional Strategies Instruction (TSI)

    Mini-lessons on specific strategies. Ts model them to Ss very often. Reminders to use them over extended period. Strategies discussed simultaneously with content acquisition. [lots of research support]

11. Concept-Oriented Reading Instruction (CORI)

    Promotes multiple-strategy use along w. content instruction.

        1. immersion into a main theme through personal engagement w. topic (observe and personalize); 2. wide reading and information gathering across multiple sources (search and retrieve); 3. reading strategy instruction (comprehend and integrate); 4. project work (communicate to others)

L1 research centered on training in multiple strategies (summarizing; clarifying; predicting; imaging; forming qs; using prior knowledge; monitoring; evaluating)
There is little L2 research.

IMPLICATIONS FOR INSTRUCTION (p. 240)
Behavior of strategic readers (Block and Presley, 2007)
    1. Size up a text in advance to predict what it will be about, looking at titles, text features, picture and format.
2. Monitor for comprehension continuously
3. Relate text info to prior knowledge
4. Form questions and find answers to questions in the text.

5. Pay attention to text structure features that will help comprehension
6. Initiate comprehension-support processes when comprehension is unclear (reread, find point of difficulty,
   make inferences, connect key parts of prior text, form initial summary)
7. Form a summary of the info in the text
8. Reflect on the info in the text after reading

Research supports the following instructional guidelines:
1. Combine a focus on reading comprehension, strategies instruction and content learning.
2. Use discussion, centered on text comprehension and comprehension monitoring, as a regular feature of
   instruction.
3. Incorporate strategy instruction as a part of everyday reading instruction, not as separate lessons.
4. Combine multiple strategies in flexible combinations in strategy instruction.
5. Work toward automatizing strategy use for fluent reading.
6. Build curricular connections between strategy use and comprehension fluency.
7. Recognize that strategies are one component of good comprehension instruction.
8. Emphasize teacher-training for effective comprehension-strategy instruction.