THEORETICAL FOUNDATIONS OF READING COMPREHENSION AND MIND MAPPING TECHNIQUES

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Abstract: This article explains the main ideas of reading comprehension and how mind mapping can help students understand texts better. It reviews key theories like schema theory and cognitive load theory to show how readers use prior knowledge, attention, and memory. The paper also shows that mind maps help organize ideas, remember information, and connect different parts of a text. They make complex information easier and reading more engaging. Practical classroom uses are suggested, such as before reading to activate knowledge, during reading to find key ideas, and after reading to summarize. The article also encourages further research on digital mind maps and their effects on different learners and text types.

Keywords: reading comprehension, mind mapping, schema theory, cognitive processing, metacognition, visual learning, language education, comprehension strategies

Reading comprehension has long been regarded as one of the most complex cognitive activities in language education. It is not merely decoding printed symbols, but a dynamic and constructive process requiring the activation of background knowledge, linguistic competence, cognitive strategies, and metacognitive regulation. As noted by some researchers, comprehension involves "simultaneous processing at multiple levels," [1] where readers integrate textual information with prior knowledge to derive meaning. In recent decades, mind mapping has emerged as a promising technique to support comprehension, particularly in contexts where learners struggle with organizing large amounts of information. Mind maps, popularized by researcher, operate on the principle that the brain processes information more effectively through nonlinear, associative structures[2]. When applied to reading, mind mapping allows learners to visualize the relationships between concepts, facilitating deeper comprehension and long-term retention.

This article says about the theoretical foundations behind reading comprehension and examines how mind mapping aligns with and strengthens these theories. It also integrates recent research findings to offer a contemporary perspective on the technique's value in both first and second language reading instruction.

Schema theory, introduced by researcher, posits that comprehension depends on the interaction between the information in a text and the reader's existing knowledge structures[3]. Schemas help readers make predictions, fill informational gaps, and integrate new knowledge. When learners lack relevant schemas, comprehension becomes significantly more difficult. Mind mapping directly supports schema activation by allowing readers to visually represent the conceptual structures underlying a text. By externalizing knowledge, it strengthens connections

[1] Grabe, W., & Stoller, F. L. (2013). Teaching and Researching Reading (2nd ed.). Routledge.
[2] Buzan, T. (1993). The Mind Map Book. BBC Books.
[3] Anderson, R. C. (1984). Role of the reader's schema in comprehension, learning, and memory.

between new and existing information. Interactive models, such as Rumelhart's framework, propose that reading involves parallel processing of bottom-up word recognition and top-down knowledge-driven information. Skilled comprehension results from the effective integration of both. Mind mapping reinforces this integration. As students map key vocabulary bottom-up alongside inferred meanings and prior knowledge top-down, they naturally form stronger conceptual networks. This enhances both literal and inferential comprehension. Sweller's cognitive load theory emphasizes that learning is hindered when working memory is overloaded. Reading dense texts can overwhelm learners especially second language readers due to unfamiliar structures and vocabulary. Mind mapping reduces cognitive overload by segmenting information into manageable visual units. By distributing information spatially, cognitive strain decreases and working memory resources can be devoted to higher order comprehension tasks.

Mind Mapping as a Pedagogical Tool: Mind mapping is a graphical technique that organizes ideas around a central concept using branches, colors, and keywords. Its nonlinear structure mimics the brain's associative processes, enabling learners to visually track relationships across ideas.

Recent studies show several advantages:

Enhanced attention and engagement: Visual representations capture learners' interest better than linear notes.

Improved information retention: The integration of visuals and keywords strengthens memory encoding.

Facilitated inference-making: By connecting textual elements, learners identify patterns and draw conclusions.

Stronger metacognitive awareness: Students monitor their own understanding while constructing the map.

A recent study by two researches found that concept-mapping approaches including mind mapping significantly improved students'[4] comprehension and recall outcomes across multiple disciplines. This provides empirical support for its use in reading instruction.

Mind mapping can be employed in various phases of reading:

Before reading: activating background knowledge and predicting content;

During reading: identifying main ideas, tracking character development, mapping arguments;

After reading: summarizing content, synthesizing themes, organizing key vocabulary.

For instance, when analyzing an expository text, learners can map hierarchical structures such as causes effects or problems solutions. This helps them better understand organizational patterns an essential skill highlighted in discourse comprehension theories.

Mind Mapping in Language Education Contexts: In English as a Foreign Language (EFL) settings, students often face barriers such as limited vocabulary, unfamiliar text structures, and insufficient background knowledge. Mind mapping functions as a scaffolding technique to bridge these gaps.

[4] Nesbit, J. C., & Adesope, O. O. (2021). Learning with concept and knowledge maps: A meta-analysis. Review of Educational Research, 91(1), 1–36.

Several recent pedagogical studies indicate that mind maps increase learners'[5] confidence and autonomy. By constructing their own maps, learners develop ownership of the reading process and monitor their comprehension more effectively. Additionally, collaborative mind mapping encourages peer discussion, which aligns with Vygotsky's sociocultural theory emphasizing learning through interaction.

The technique also supports multilingual learners by providing visual anchors for meaning. This multimodal approach is especially beneficial for learners with diverse cognitive styles, including visual and kinesthetic learners.

Reading comprehension is a multifaceted cognitive process grounded in theories that emphasize knowledge activation, integrative processing, and memory management. Mind mapping emerges as a powerful technique that aligns well with these theoretical understandings. By externalizing knowledge structures, reducing cognitive load, and enhancing engagement, mind maps significantly support learners in constructing meaning from text.

The review of both classical theoretical models and recent practical studies demonstrates that mind mapping can enrich reading instruction across diverse learning contexts. Future research should explore the use of digital mind mapping tools and examine the technique's impact on different text genres and learner populations.

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