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## **Cognitive-based approaches in Language Teaching**

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In the landscape of English language education, teachers frequently encounter persistent challenges that traditional pedagogical approaches struggle to address effectively. Questions such as “Why is this not working?” and “Why is it so difficult for students to recall previously taught material?” have become commonplace in educational settings, highlighting a disconnect between teaching methods and the natural mechanisms of human learning [3]; [8]. The acquisition of a second language requires intricate interconnection among various cognitive processes to perceive language through listening and reading, and to produce it through written symbols, phonemes, words, and sentences in speech.

The value of implementing cognitive-based approaches in language teaching stems from an understanding that successful language acquisition depends primarily on the integrated functioning of cognitive processes [12]. The natural preconditions for language learning are embedded within cognitive processes that govern information processing, including perception, attention, memory, and

metacognition. These cognitive processes do not operate alone but function as a network that facilitates the complex task of acquiring and using a second language [6].

Modern language teaching, particularly in English as a foreign language, requires more than mere transmission of linguistic input. Educators should apply learning experiences that actively engage the mind, guiding learners through attention-focused activities, memory-enhancing techniques, and opportunities for self-regulation. Cognitive-based approaches prioritize not only what is taught but how information is perceived, processed, and interpreted by learners. By grounding language teaching in cognitive science, educators can move beyond intuition-driven instruction and implement targeted, evidence-based strategies that enhance learner engagement, autonomy, and long-term language development.

## **1. Basic Cognitive Mechanisms in Second Language Acquisition**

The processes of language perception occur through multisensory channels, including hearing sounds, seeing symbols, touching objects, and integrating various sensory experiences [3, 8]. In human cognition, categorical images exist for objects and concepts, accessed through analogical reasoning by senses that construct word meaning. For instance, when using the word “apple,” individuals retrieve their categorical knowledge: some might visualize sweet-tasting or sour fruit, it might be red, yellow or green. Through these sensory capabilities of the human brain, speakers can describe objects using descriptive language, and despite having different categorical memories, conversation participants can achieve mutual understanding because of prior and common knowledge of the object.

During second language learning, when learners encounter new linguistic concepts, they naturally attempt to map these onto existing categorical units established through their first language [7]. The success of this mapping process

depends significantly on the degree of familiarity between L1 and L2 words [9]. Where significant differences exist between languages in how they categorize and represent concepts, learners utilize cognitive processes that previously helped them acquire knowledge about objects and concepts [5].

Attention, functioning as a limited mental resource, determines what linguistic input learners process and eventually retain. According to Schmidt's (1990) Noticing Hypothesis [12], conscious attention or noticing serves as a necessary precondition for second language acquisition. Learners cannot acquire language structures if they do not first notice the input, making attention direction a critical component of effective language instruction. Contemporary cognitive models conceptualize attention not as a binary on/off mechanism but as a scalable resource that can be trained and strategically directed. [6] Learners cannot process all incoming stimuli simultaneously; therefore, they must prioritize certain linguistic features over others.

Memory functions as a complex cognitive system comprising interconnected components: working memory, short-term memory, and long-term memory, each performing distinct roles at various learning stages. Working memory operates as a mental workspace where learners actively manipulate information, functioning as a cognitive notepad that holds information temporarily while processing occurs. When someone speaks in a foreign language, working memory permanently decodes sounds while decoding meanings and formulating responses. However, working memory has significant limitations, a restricted capacity of approximately 7 items [10] and brief duration, which explains why students might understand individual words but struggle with complex sentences when cognitive resources become overloaded.

Short-term memory acts as temporary storage where information remains for approximately 15-30 seconds after initially noticing. When students face new vocabulary, it enters short-term memory first. Without active engagement through repetition, writing, or connection to prior knowledge, information simply fades

away, explaining why vocabulary encountered minutes earlier vanishes without deliberate processing activities.

Long-term memory represents the permanent storage system with unlimited capacity, functioning like a vast library of organized knowledge. However, storing information in long-term memory does not guarantee easy retrieval; learners often require appropriate contextual cues to access stored information effectively. The transfer from working memory to long-term memory requires strategic instruction that supports encoding processes while managing cognitive load appropriately.

Metacognition refers to learners' awareness and regulation of their own cognitive processes. In second language acquisition, metacognition encompasses learners' ability to plan, monitor, and evaluate their language learning strategies while understanding their individual learning preferences and capabilities [4]; [13]. This self-awareness proves essential for developing learner autonomy, representing a goal in modern English language pedagogy based on learner-centered and cognitively informed teaching approaches.

Metacognition typically divides into two interconnected components: metacognitive knowledge and metacognitive regulation. Metacognitive knowledge refers to what learners understand about themselves as learners, including awareness of the tasks they face and strategies available for task completion. Metacognitive regulation concerns how learners apply this knowledge through activities such as planning study approaches, monitoring comprehension during listening or reading activities, and adjusting strategies when difficulties arise.

## **2. Practical Implementation of Cognitive Processes in English Language Teaching**

Effective implementation of perceptual engagement requires recognizing and accommodating diverse learning styles and sensory preferences. Multisensory

approaches prove particularly effective because they provide multiple ways for information processing while accommodating individual differences in perceptual preferences. Teachers can implement Total Physical Response (TPR) activities that combine visual, auditory, and kinesthetic elements, creating rich learning experiences that engage multiple cognitive channels at the same time. Dual Coding Theory [11] supports combining visual and verbal instruction to help learners encode information more deeply and create stronger memory traces.

Attention management requires systematic implementation of salience techniques that guide learner focus toward target linguistic features. Visual emphasis through highlighting, bolding, or enlarging critical language items increases the likelihood that learners will notice and process important information. Auditory emphasis through repetition, stress, and intonation variation during listening tasks helps direct attention to key structural elements. Task-based activities are proven particularly effective for attention engagement because they create authentic communication needs that naturally direct attention toward relevant linguistic forms. When learners are prompted to complete such tasks, attention flows toward language elements necessary for task completion, creating optimal conditions for noticing and acquisition. Information-gap activities, problem-solving tasks, and collaborative projects maintain sustained attention while providing purposeful contexts for language use.

Memory optimization requires careful management of cognitive load while implementing strategies that support encoding and retrieval. Chunking techniques break information into manageable units that respect working memory limitations while facilitating processing. Spaced repetition schedules review and practice activities at gradually increasing intervals, supporting long-term retention through systematic rehearsal. Retrieval practice activities, including low-stakes quizzes, oral recitation, and active recall exercises, strengthen memory traces while improving accessibility of stored information. The testing effect demonstrates that active retrieval of information from memory enhances long-term retention more

effectively than passive review or repeated exposure. Contextual encoding strategies help learners create connections between new information and existing knowledge. When language learning occurs within authentic, personally relevant contexts, learners develop stronger memory associations that support both retention and transfer to new situations.

Metacognitive development requires explicit instruction in learning strategies combined with regular opportunities for reflection and self-evaluation. Goal-setting activities help learners establish clear, achievable objectives while developing awareness of their learning priorities. Self-monitoring techniques teach learners to assess their progress during learning activities, enabling real-time adjustments and strategy modifications. Strategy instruction should include explicit teaching of various learning approaches, guided practice in strategy application, and reflection on strategy effectiveness. Learners benefit from understanding when and why to use specific strategies, developing flexibility in strategy selection based on task requirements and personal learning preferences. Regular reflection activities, including self-assessment checklists and peer feedback sessions, provide support for metacognitive development by encouraging learners to analyze their learning processes and outcomes. This reflective practice helps learners develop greater awareness of their cognitive processes while building capacity for autonomous learning.

### **3. Conclusion**

Throughout the basic cognitive processes and an overview of how to facilitate them by techniques, we want to conclude that the involvement of cognitive processes in English learning acquisition represents a paradigmatic shift from traditional content-focused instruction toward learner-centered, cognitively informed pedagogy. Understanding and implementing cognitive principles: perception, attention, memory, and metacognition can enable educators to create more efficient and engaging learning experiences that include the natural mechanisms of human learning.

The integration of cognitive awareness into language teaching practices transforms classrooms into dynamic environments where learners actively engage with linguistic input through multiple cognitive channels while developing autonomous learning capabilities.

The practical implementation of cognitive principles requires attention to individual differences, strategic use of attention-directing techniques, careful management of cognitive load, and explicit development of metacognitive awareness. Through this comprehensive approach, English language learners develop not only linguistic competence but also the cognitive skills necessary for continued language development throughout their lives.

As language education continues evolving, cognitive-based approaches provide stable, scientifically grounded principles for navigating changes in technology, methodology, and learner needs. By understanding and applying cognitive-based approaches, educators contribute to the development of more effective, humane, and successful language learning experiences that prepare learners for authentic communication in an interconnected world.

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## **THE IMPACT OF ONLINE LEARNING ON THE DEVELOPMENT OF AUTONOMY IN THE LEARNING OF A TARGET LANGUAGE**

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The rise of online learning platforms has transformed English language education, fostering greater learner autonomy. Autonomy in language learning refers to the learner's ability to take charge of their own learning process, including setting goals, selecting resources, and self-regulating progress. This article explores how online learning environments contribute to the development of autonomy among English language learners.