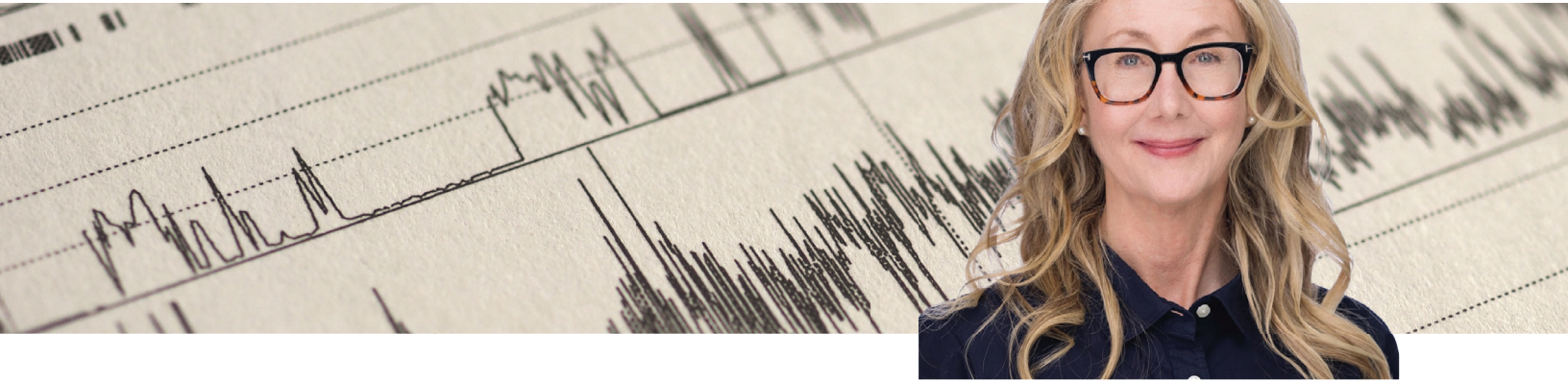


Introducing the **CHAT Lab**: Electrophysiological Indices of Learning in Speech



The newly established speeCH And Time (CHAT) lab is situated within the Department of Communication Sciences and Disorders at the College of Education. Led by Assistant Professor and Principal Investigator Anne van Zelst, Ph.D., CCC-SLP-L, the CHAT lab is at the forefront of research into speech learning and the temporal dynamics of learning processes. Utilizing advanced electrophysiological techniques, including electroencephalography (EEG) and event-related potentials (ERPs), the lab delves into the intricate mechanisms underlying speech perception and production.

A primary focus of the CHAT lab is the phenomenon of offline learning, which refers to the changes in speech perception and production that occur during periods of rest or sleep following active practice sessions. This line of inquiry is crucial for understanding how the brain consolidates and enhances learned material in the absence of further practice. By examining the electrophysiological indices during these offline periods, the lab aims to elucidate the neural processes that facilitate the retention and refinement of speech skills.



In addition to offline learning, the CHAT lab investigates the influence of time-of-day on both procedural and declarative learning. Procedural learning involves the acquisition of skills and habits, while declarative learning pertains to the acquisition of factual knowledge. The lab's research explores how these types of learning are affected by the time of day at which practice occurs, and how this relationship is modulated by an individual's chronotype—whether they are naturally inclined to be more alert and active in the morning or evening. This aspect of the research is particularly relevant for optimizing learning schedules and understanding the role of circadian rhythms in cognitive performance.

The CHAT lab's state-of-the-art facilities include a dedicated nap room and cutting-edge EEG equipment, enabling researchers to conduct comprehensive studies on the interplay between sleep, rest, and learning. "The integration of these resources allows for a holistic approach to investigating how different states of consciousness and times of day impact the learning process," said van Zelst.



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Research from the CHAT lab will contribute significantly to the field of communication sciences by providing insights into the neural mechanisms of speech learning and the temporal factors that influence it. Through their innovative use of electrophysiological indices, the lab's findings have the potential to inform educational practices and therapeutic interventions aimed at enhancing speech and language skills.