Navigating Scientific Lexicon: Revolutionizing Scientific Terminology Instruction Through Mortrex Framework

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Abstract

Navigating the realm of scientific terminology poses a formidable challenge for many ESL undergraduate students, particularly those for whom English is a second language (ESL). The Morpheme-Oriented Tree of Lexicogenic Extensions (MORTREX) framework was used to create a new theoretical framework that helps English as a Second Language (ESL) students learn and improve their scientific vocabulary. This conceptual framework aims to provide a comprehensive understanding of the organization, expansion, and functional aspects of morphemes within a language. The MORTREX framework elucidates the hierarchical arrangement of morphemes and their relationships, focusing on how they contribute to the formation and expansion of words through the addition of extensions. This framework facilitates the analysis, categorization, and exploration of morphemes, shedding light on their roles in language structure, development, and meaning. The results of implementing the MORTREX framework are represented in the form of a continuous mind map. This visual representation highlights the remarkable ability of students to generate branching extensions and new terminologies stemming from their chosen scientific term. This outcome underscores the pivotal role of a solid understanding of word formation processes in expanding students' grasp of scientific terminology, thereby enhancing their terminology acquisition. The findings of this study emphasize the symbiotic relationship between knowledge of word formation and the broader acquisition of scientific terminology. By cultivating a deeper comprehension of morphemic constituents and their interconnections, students are empowered to significantly expand their terminology repertoire. Consequently, this study calls attention to the importance of incorporating explicit teaching of word formation processes into curricula aimed at enhancing students' grasp of scientific language. In conclusion, this research offers valuable insights for curriculum developers and instructors of content courses. By integrating targeted instruction on word formation, educators can effectively enhance students' ability to acquire and master scientific terminology.

Keywords: Scientific Terminology Instruction, MORTREX framework, word formation

TEACHING AND LEARNING POSTER IDEAS

TALPI 2023

"TOWARDS INNOVATIVE GLOBAL TRENDS IN EDUCATION "

VIRTUAL COMPETITION

Navigating Scientific Lexicon: Revolutionizing Scientific Terminology Instruction through MORTREX Framework

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TALPI 2023
TEACHING AND LEARNING POSTER IDEAS 2023
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01 ABSTRACT

A novel theoretical framework that aids ESL students in developing, acquiring, and enhancing knowledge of scientific terminology was developed using the morpheme-oriented tree of lexicogenic extensions (MORTREX) framework. This study focuses on a sample of 30 students enrolled in a liberal arts course titled “Greek and Latin in Scientific Terminology”. The methodology involves teaching students on word formation processes and the inherent meanings of individual word constituents in scientific parlance. Additionally, students were guided to select a specific scientific term and subsequently extend it to generate new word parts or terminologies. The results of implementing MORTREX framework are represented in the form of a mind map. This visual representation highlights the remarkable ability of students to generate branching extensions and new terminologies stemming from their chosen scientific term.

02 OBJECTIVES

01. Evaluate if the morpheme-oriented tree of lexicogenic extensions (MORTREX) aids ESL undergraduates in mastering scientific terms.

02. Explore how well students grasp word formation and the meanings of word parts in scientific language.

03. Measure if MORTREX broadens students’ scientific terminology.

03 ADVANTAGES

- Conceptual Clarity
- Independent Word Learner
- Structured Learning
- Visual Representation
- Terminology Expansion
- Creative & Critical Learning Exploration
- Cognitive Engagement
- Linguistic Insights (Etymology)
- Pedagogical Adaptability

04 USEFULNESS

ENHANCED COMPREHENSION:
Fosters a deeper understanding of scientific terminology by breaking down complex terms into their constituent morphemes.

ACTIVE ENGAGEMENT:
Promotes hands-on learning and creative and critical thinking in extending new terms.

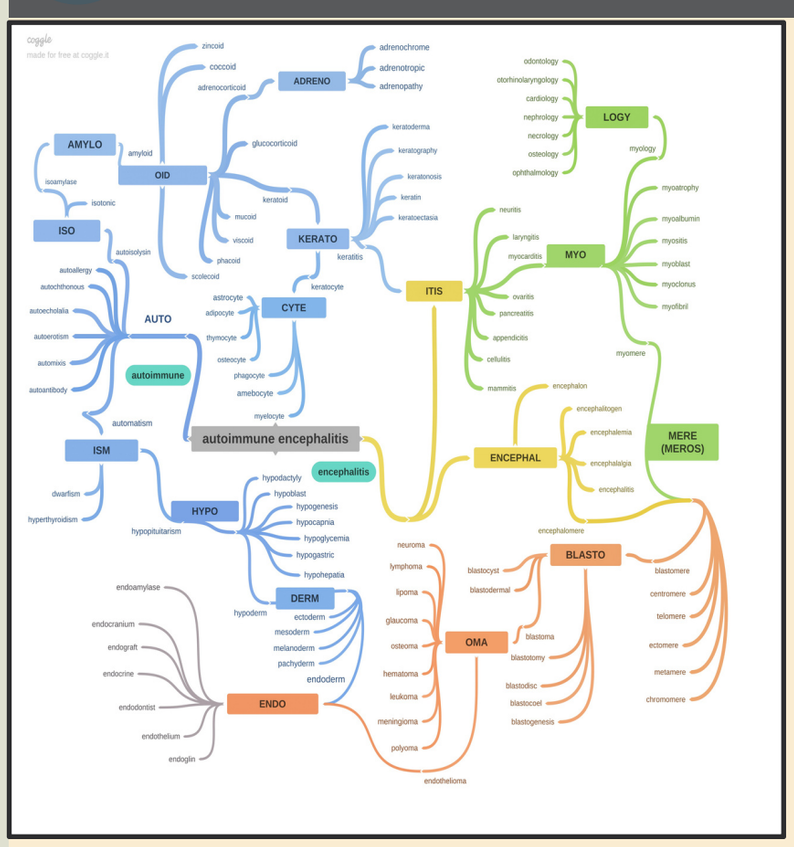
TERMINOLOGY EXPANSION:
Enriches linguistic repertoire within the scientific domain.

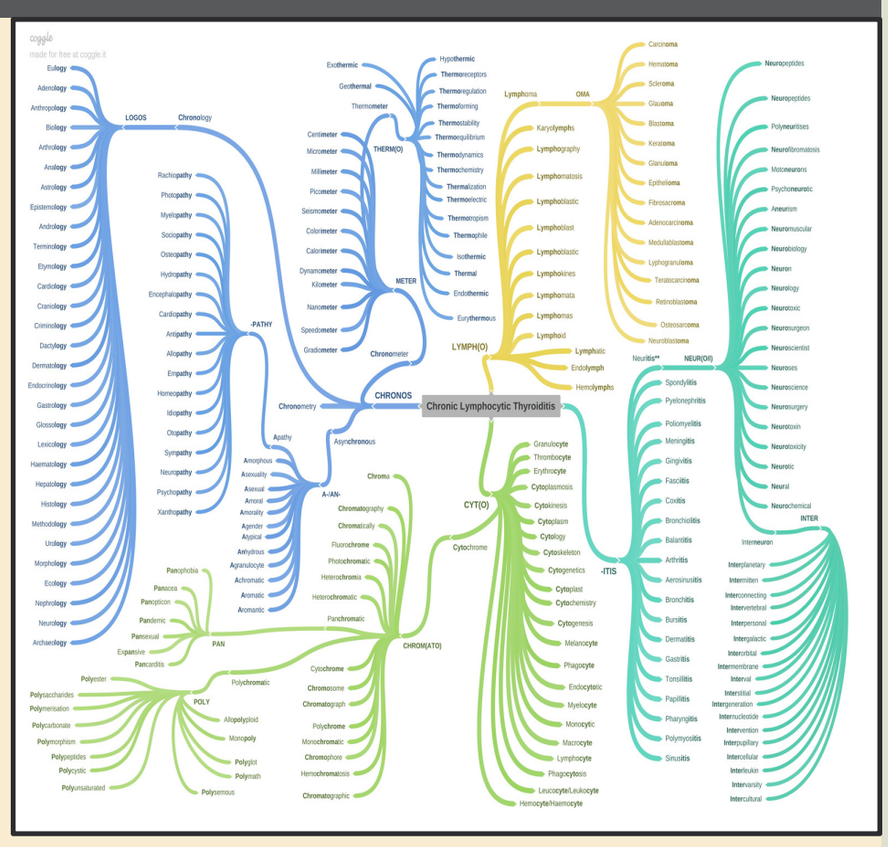
CROSS-DISCIPLINARY APPLICATION:
MORTREX is versatile, adaptable to diverse subjects and language contexts beyond science, making it a valuable tool for educators in different disciplines.

05 APPLICATION

- **Language Learning:** It promotes a nuanced understanding of word formation
- **Language Translation:** It may assist in deciphering unfamiliar terms
- **STEM Instruction:** It aids educators in demystifying intricate terminologies
- **Clinical & Medical Education:** It enhances memorization and facilitates comprehension
- **Curriculum Development:** Educators can integrate MORTREX in curriculum planning
- **Instructional Design:** Itcrafts learning materials that facilitate students’ learning

06 NOVELTY & ORIGINALITY





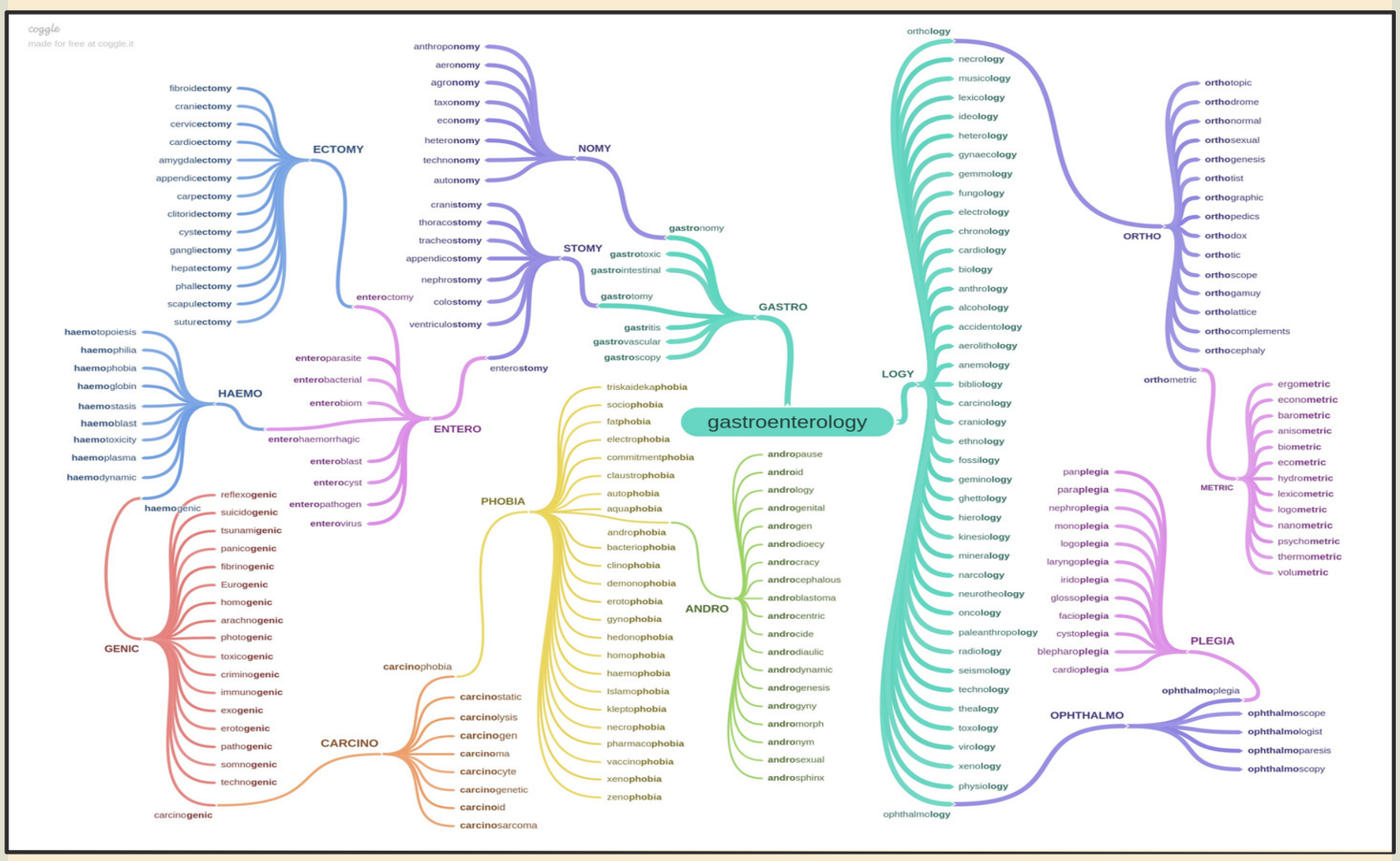
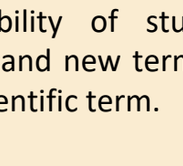


Fig. Sample Students’ Works using Morpheme-oriented Tree of Lexicogenic Extensions (MORTREX) Framework

07 CREATIVITY



- **Word Constituents Unveiled**
- **Extension and Innovation**
- **Visual Mapping of Language Student-**
- **Centered Learning**
- **Fusion of Critical and Creative**
- **Thinking Personalized Learning Pathways**

07 COMMERCIALISATION

- **Language Learning Platforms**
- **Professional Training Organizations**
- **Educational Technology Companies**
- **Educational Publishers**
- **App Development**
- **Workshops and Training Sessions**

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