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SEMANTO-PEDAGOGICAL ANALYSIS OF JARGONS IN PHYLINGSITICS

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Abstract:

The current study presents a semanto-pedagogical analysis of the jargons in Phylingsitics, a specialized field that interconnects linguistics and physics. The study aims to explore the semantic nuances and pedagogical implications of key terms used in Phylingsitics, which often bridge the gap between scientific concepts and linguistic expressions. Through a comprehensive literature review and semantic analysis, this paper delves into the intricate meanings of these terminologies and their significance in both academic discourse and educational contexts. The findings contribute to a deeper understanding of how language is used to convey complex scientific ideas in Phylingsitics and offer insights into effective pedagogical strategies for teaching and learning in this interdisciplinary domain.

Key Words: Phylingsitics, Semantics, Pedagogical, Terminologies , Inter-disciplinary

Introduction:

Phylingsitics, as an interdisciplinary field, sits at the intriguing junction of physics and linguistics. It delves into the linguistic aspects of scientific concepts, often necessitating a nuanced understanding of terminology that bridges these two domains. In this context, a semanto-pedagogical analysis of terminologies becomes crucial, aiming to unravel the intricate semantic layers while considering their pedagogical implications. The fusion of physics and linguistics gives rise to terminologies that encapsulate complex scientific ideas within linguistic frameworks. These terms serve as pivotal tools for communication, education, and knowledge dissemination within the Phylingsitics community. However, their meanings can sometimes be subtle, context-dependent, and subject to interpretation, posing challenges for both learners and educators in this domain. This research paper embarks on a journey to dissect and analyze the terminologies in Phylingsitics from a semanto-pedagogical perspective. By scrutinizing the semantic nuances of these terms, we aim to uncover their deeper connotations and shed light on their pedagogical relevance. This analysis not only enhances our understanding of the linguistic fabric of Phylingsitics but also offers insights into effective teaching and learning strategies tailored to this interdisciplinary landscape. Through a blend of literature review, semantic analysis, and pedagogical considerations, this study endeavors to contribute significantly to the evolving discourse within Phylingsitics. By elucidating the semantic richness of its terminologies and proposing pedagogical approaches, we aspire to foster a more robust and accessible platform for knowledge exchange and academic discourse in this burgeoning field.

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Literature Review

There is a long history of the relationship between linguistics and physics. Plato is considered as the first linguist who considered the importance of physical issues for linguistics and linguistic issues for physics. On the other hand, Heinz (1979) describes that there are two kinds of principles involved between both the disciplines i.e. principles of changeability and unchangeability. Halliday (1990) presents a list of linguistic structures that were technical and used metaphorically in both natural science and linguistics. These terms are abstract nouns and metaphorical verbs used to refer the logical connections. Bohm (1988) expresses his opinion about the ability to write grammatical structure and their usage for describing fluid and dynamic nature of the reality that emerges from observation of particles and laws of quantum mechanics. He says that the basic problem arises from the interpretation. Moreover, Halliday (1990) states that Newton and Galileo did not invent new grammar, but reconstructed the new scientific language. Coetzee (1992) state that Physics is rather argues with the linguistic worldview rather to obey or agree with it. Heller (1999) states that the interpretation of quantum world is less precise but more metaphorical, which cannot satisfy particle physicist, who only focuses only on linguistic structure that is expressed in mathematical patterns. Steiag (2013) states that in the academia, linguistics has been used as a humanistic academic discipline in social science or natural science. This is because of the reason that linguistics is the subject that is of interest of many fields. Etkina (2001) gives a model of science learning and how learners can learn science in different stages:

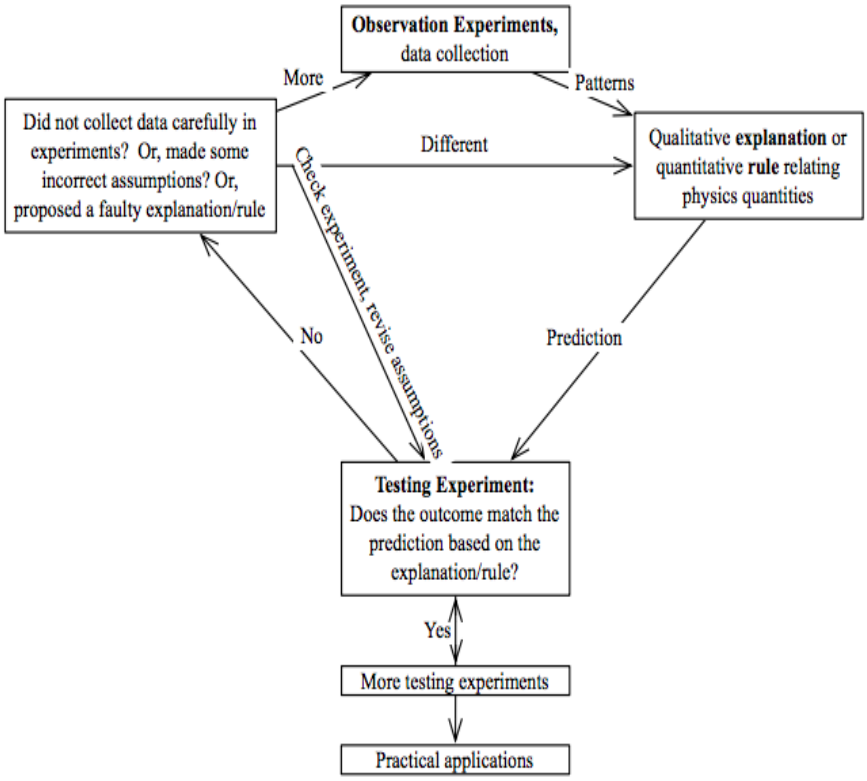

Figure 1: Etkina (2001) Science learning model

Williams (1999) states that physics is good science and for good reason. We measure measurement, equations, claims. He states that misleading and uninformative assumptions can be overcome by striving to achieve precision in language.

Chi et. al (1997) gives a model of mental cognition and how new learners process the scientific terms in the mind:

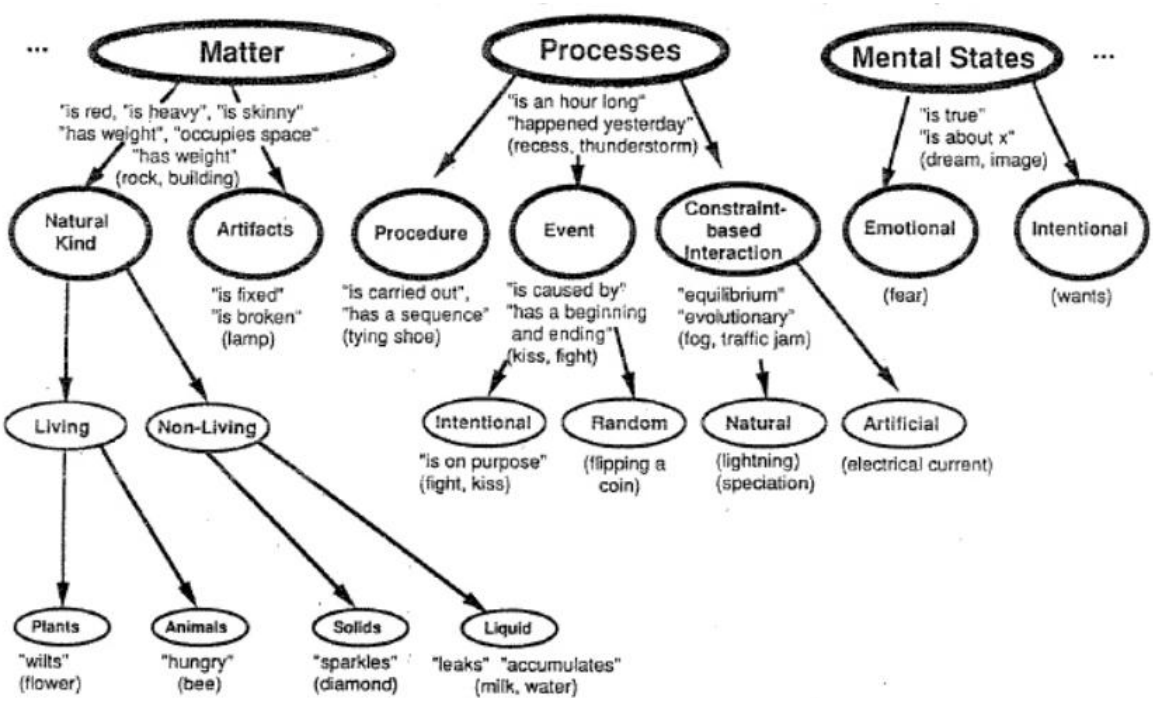

Figure 2: Chi et. al (1997)'s ontology tree

The scientific language is subject to the technical terms that are used in spreading the scientific phenomena. The linguistic terms and their meaning are bit easy to explain as the human brain process the terms in contextual sense whereas in science the terms are based on scientific evidences. Veel (1997) states that linguistic features are more complex and usage of linguistic terms are physical whereas scientific terms are more abstract.

Research Methodology

The following research methodology was used for the current research study:

1. Research Design

The current study used the qualitative research design for the research purposes. The deductive approach was applied for the reasoning and analysis of the data.

2. Theoretical Framework

The current study developed a semanto-phylingsitics theoretical approach for explaining the scientific terms and their pedagogical approach.

3. Data Collection:

The data was collected from the scientific books and journals of linguistics and physics.

4. Data Analysis:
The data was analyzed by developing a comparative semanto-pedagogical table for clarifying the etymology of the key terms selected for the current research.

5. **Limitations:** The current study is limited to the 10 scientific key terms commonly used in the classrooms.

6. **Contributions and Implications**: The current study is significant in the pedagogical development of the teaching of the science and linguistic and in clarification of the key terms to the young learners.

5. Data Analysis and Discussion

Table 1. **Phylingsitics terms (wave) usage**

Terminology	**Semantics in Physics**	**Semantics in Linguistics**	**Origin**	**Root Language word**	**Native Language Meaning /Semantics**	**Pedagogical Approach**
Wave (V+N)	In physics, waves refer to oscillations that transfer energy without displacing matter permanently.	In linguistics, this term is sometimes used metaphorically to describe the propagation of language, ideas, or cultural phenomena.	German	Waven/ Wab	•	• Pictorial in Physics • Contextual in Linguistics

The word has its origin from German. The word "wave" is a versatile term that finds usage across a spectrum of disciplines and everyday contexts. In physics and science, it denotes a disturbance that propagates through a medium or space, encompassing phenomena like electromagnetic waves and mechanical waves. Oceanography and geology employ "wave" to describe surface disturbances on bodies of water caused by wind or seismic activity, crucial for understanding marine dynamics and geological formations. In mathematics and statistics, a "wave function" describes the behavior of wave-like phenomena or patterns in data over time. Technology and engineering utilize the concept of waves in fields such as electronics, telecommunications, radar, and sonar, where waveforms and wave propagation are fundamental. Figuratively, "wave" is metaphorically used to depict actions or occurrences that resemble the oscillating nature of waves, such as waves of protests or waves of migration, illustrating its broader applicability beyond scientific realms. The above shows that “wave” is used to refer ideas in linguistics. To introduce the term "wave" to physics students, define it as a disturbance that passes across a material, transferring energy, using

examples such as sound waves and light waves, and demonstrate it with ripple tanks or slinky springs. For linguistics students, define "wave" figuratively as a trend or movement in language or culture, using examples such as waves of linguistic change or social media trends. The primary distinction is that in physics, a "wave" is a physical process involving energy transmission, but in linguistics, it is a metaphorical notion suggesting trends or movements in language and culture. Yongqi Gu (2003) states that factors like age, gender, educational background, classroom environment effect the learning of the students and pedagogical approach is greatly dependent on these factors.

Table 2. **Phylingsitics terms (field) usage**

Field(V+N)	In physics, a field represents a region in which a physical quantity has a value at every point, such as an electromagnetic field.	In linguistics, "field" can refer to a specific area of study or expertise, such as the field of semantics or syntax.	Germ an	**felthan* " flat land"	• Diagram in Physics • Contextua l in Linguistic s

To introduce the term "force" to students of physics and linguistics, begin with its definition in physics as an interaction that alters an object's motion, as illustrated by Newton's equations and hands-on experiments such as measuring pushes and pulls using force metres. In linguistics, describe "force" figuratively as the effect or impact of language, using examples from compelling speeches and literary literature. The primary distinction is that in physics, "force" is a quantifiable physical quantity, but in linguistics, it denotes abstract impact or efficacy in communication. The term "field" holds significant meaning in both physics and linguistics, albeit in distinct ways. In physics, a "field" refers to a region in space where a physical quantity, such as gravitational force, electric charge, or magnetic intensity, exerts its influence. This concept is fundamental in understanding the behavior of particles and forces in the universe, with fields serving as a framework for describing interactions and phenomena. In contrast, in linguistics, a "field" often pertains to a specific area of study or expertise within the broader discipline of language and communication. For instance, one might refer to the field of sociolinguistics, psycholinguistics, or computational linguistics, each focusing on different aspects of language, its usage, and its cognitive or computational processes. Despite the divergence in their applications, both physics and linguistics utilize the term "field" to delineate specialized domains of inquiry and analysis. Asgari (2011) discusses different pedagogical strategies that can be used for teaching the scientific terms to the learners of science and linguistics like consolidation strategy, social strategy, discovery strategy and memory strategy. However, in this study, for the students of physics diagram based approach is effective and for the students of linguistics, contextual or metaphorical strategy is effective.

Table 3. **Phylingsitics terms (Force) usage**

Force(V+N)	In physics, force is an interaction that can cause an object to accelerate or deform.	In linguistics, the term "force" can be used metaphorically to describe persuasive or influential factors, such as the force of an argument or the force of social norms on language use.	French Italian Latin	Force Forza Forzo	• Contextual in Physics & Linguistics

The word has its origin from the languages like French, Italian and Latin with different semantic sense. The term "force" carries distinct meanings in the realms of physics and linguistics. In physics, force is a fundamental concept describing the interaction that causes a change in the motion or state of an object. It is quantified by factors such as magnitude, direction, and type (e.g., gravitational force, electromagnetic force). Forces govern the behavior of particles and systems in the physical world, influencing phenomena like acceleration, deformation, and energy transfer. On the other hand, in linguistics, "force" can be metaphorically used to describe the power or influence exerted by language structures, rules, or social dynamics. For instance, linguistic pragmatics examines how speakers use language to convey intentions, exerting a communicative force that goes beyond literal meanings. This dual usage of "force" illustrates its versatility, from the physical realm of motion and energy to the nuanced dynamics of language and communication. Chaudary (2010) explains various strategies that can be used for teaching the vocabulary to science and social science students like contextual teaching, defining strategy and explicit learning strategy. Teaching the word "force" to students of physics and linguistics involves demonstrating its application in both physical and metaphorical contexts. In a physics class, teachers can introduce force as an interaction that causes a change in an object's motion, using Newton's laws of motion to explain how forces act. Teachers can conduct experiments with pushing and pulling objects, using force meters to measure the force applied, and illustrate with free-body diagrams. For linguistics students, we can explain the metaphorical use of "force" to describe influence or impact in language, such as the "force" of an argument or the persuasive "force" of rhetoric. By providing practical, hands-on activities and drawing parallels between the physical and abstract uses of "force," students can better understand its versatile meanings.

Table 3. **Phylingsitics terms (Entropy) usage**

Entropy (N)	In physics, entropy is a measure of disorder or randomness in a system.	In linguistics and information theory, entropy is used to quantify the uncertainty or unpredictability of a linguistic message or the amount of information carried by a message.	German	*Entropie* "measure of the disorder of a system,"	• Contextual in Physics & Linguistics

The word "entropy" holds distinct yet interconnected meanings in physics and linguistics. In physics, entropy refers to a measure of the disorder or randomness in a system, with higher entropy indicating greater disorder. This concept is central to thermodynamics, where it describes the tendency of systems to evolve towards states of higher entropy, leading to processes like heat dissipation and the arrow of time. In linguistics, entropy is applied in information theory to quantify the unpredictability or uncertainty of linguistic elements within a communication system. It reflects the degree of information content or redundancy in language, with higher entropy suggesting a more diverse or less predictable set of linguistic units or patterns. Thus, entropy serves as a bridge between physical principles of disorder and the informational complexity inherent in linguistic structures and communication systems.

Casal (2008) says that while teaching in the classroom, a teacher should apply certain strategies like learning strategy and cooperative teaching for building the understanding of the scientific terms. Teaching the term "entropy" to students of physics and languages entails explaining its underlying idea of disorder or unpredictability. In a physics lesson, we can introduce entropy using thermodynamics to demonstrate how it quantifies disorder in a system. Teachers can use examples such as melting ice or mixing gases to demonstrate how entropy increases in natural processes. Visual tools, such as chemical diagrams, can help to consolidate this knowledge. In the linguistics class, we can explain entropy to linguistics students as a measure of the unpredictability or randomness of information content in language. We can use text analysis examples to demonstrate how high entropy in a language sample suggests a diverse set of word choices and structures. Connecting these principles through hands-on activities and cross-disciplinary examples allows students to appreciate the complex nature

Table 4. **Phylingsitics terms (Energy) usage**

Energy(V+N)	In physics, energy is the ability to do work or produce heat.	In linguistics, "energy" can be used metaphorically to describe the intensity or emotional impact of speech, such as high-energy language or low-energy communication.	French	*énergie*	• Contextual in Physics & Linguistics

The expression "energy" carries multifaceted meanings in both physics and linguistics. In physics, energy is a fundamental concept representing the capacity of a system to perform work or transfer heat. It exists in various forms such as kinetic energy (associated with motion), potential energy (related to position or state), thermal energy, chemical energy, and more. Energy is conserved in isolated systems, with transformations occurring between different forms according to the laws of thermodynamics. In linguistics, "energy" can be metaphorically used to describe the intensity, vigor, or emotional charge conveyed through language. For example, linguistic prosody considers how variations in pitch, stress, and rhythm contribute to the expression of emotional or emphatic energy in speech. This dual usage of "energy" highlights its role in both physical dynamics and expressive communication, showcasing its broad applicability across disciplines. In linguistics, energy takes on a metaphorical role related to the intensity, emphasis, or emotional expression in language. Pasylk (2009) states that integrated reading and writing strategies are effective for teaching the terms of physics to the students of advance level learning. Teaching energy in linguistics involves exploring prosody, intonation patterns, and speech dynamics that convey varying degrees of energy in communication. Engaging students in activities like analyzing speeches, identifying stress patterns in words and sentences, and practicing expressive speech delivery can deepen their understanding of how linguistic elements contribute to conveying energy and meaning. Overall, teaching the term "energy" in both physics and linguistics requires a combination of theoretical explanations, practical demonstrations, and interactive exercises tailored to the specific concepts and applications within each discipline.

Table 5. **Phylingsitics terms (Quantum) usage**

Quantum(N)	In physics, quantum refers to discrete units or packets of energy and other physical quantities.	In linguistics, "quantum" can be used metaphorically to describe discrete units or increments of language, such as a quantum of meaning or a quantum of information.	Latin	quantum	• Contextual in Physics & Linguistics

The word "quantum" has its roots from Latin, carries profound significance in both physics and linguistics, albeit in vastly different ways. In physics, "quantum" refers to discrete packets of energy or particles that exhibit quantum mechanics phenomena, such as wave-particle duality, quantization of energy levels, and entanglement. Teaching the term "quantum" in physics involves introducing students to the foundational principles of quantum theory, including concepts like superposition, probability amplitude, and quantum states. Utilizing visual aids, simulations, and thought experiments can help students grasp the counterintuitive nature of quantum phenomena and their implications for understanding the microscopic world.

In linguistics, "quantum" is sometimes used metaphorically to describe discrete or distinct units of language, such as phonemes in phonology or morphemes in morphology. Nuunan (1999) states that skimming strategy, scanning , reading word by word are effective for understanding the key scientific and linguistic terms. Teaching the term "quantum" in linguistics involves exploring how linguistic elements can be analyzed as discrete units that combine to form larger structures, akin to the way particles in quantum mechanics combine to form complex systems. Engaging students in phonetic and morphological analyses, word segmentation tasks, and linguistic structure building exercises can enhance their understanding of the "quantum" nature of language units. Overall, teaching the term "quantum" in both physics and linguistics necessitates bridging the conceptual gaps between the physical and linguistic domains, leveraging appropriate pedagogical strategies to convey the unique aspects and applications of "quantum" in each discipline.

Table 6. **Phylingsitics terms (Resonance) usage**

Resonance(V+N)	In physics, resonance occurs when a system vibrates at its natural frequency, leading to increased amplitude of oscillation.	In linguistics, resonance can be used metaphorically to describe the amplification or reinforcement of linguistic elements or meanings in communication.	Latin	“resonantia "	• Pictorial in Physics • Contextual in Linguistics

The term "quantum" holds profound significance in physics and linguistics, representing discrete units and phenomena in both disciplines. In physics, "quantum" refers to the smallest possible discrete unit of a physical quantity, such as energy or momentum. Quantum mechanics describes the behavior of particles and energy at the microscopic scale, with principles like superposition and entanglement challenging classical intuitions. When teaching "quantum" in physics, starting with historical context, such as the development of quantum theory and key experiments like the double-slit experiment, can provide a foundation for understanding quantum concepts. Visualizations, analogies (like Schrödinger's cat), and hands-on demonstrations (like quantum tunneling) can make abstract quantum principles more accessible.

In linguistics, "quantum" is used metaphorically to describe discrete units or elements in language, such as phonemes, morphemes, or syntactic structures. Teaching "quantum" in linguistics involves introducing students to linguistic units as discrete entities that combine according to specific rules to create meaning and structure. Activities like phonemic analysis, morphological parsing, and syntactic tree diagramming can help students grasp the "quantum" nature of language elements. Drawing parallels between quantum concepts (e.g., superposition) and linguistic phenomena (e.g., morpheme combinations) can also deepen understanding. Overall, teaching "quantum" in both physics and linguistics requires engaging students with foundational concepts, providing real-world examples or analogies, and utilizing interactive methods to bridge the conceptual gaps between the disciplines.

Table 7. **Phylingsitics terms (Particle) usage**

Particle(V+N)	In physics, particles are tiny units of matter or energy, such as electrons or photons.	In linguistics, "particle" can be used to refer to small, function words or elements that contribute to the meaning or structure of a sentence, such as prepositions or conjunctions.	Latin	"*particula* " little bit or part, grain, jot,"	• Pictorial in Physics • Contextual in Linguistics

In physics and linguistics, the term "particle" carries different but related meanings, reflecting its versatility across disciplines. In physics, a "particle" refers to a small localized object with mass and other physical properties. Particles are fundamental entities in the study of matter and energy. They can be elementary particles like electrons, quarks, and neutrinos, or composite particles like protons, neutrons, and atoms. The behavior of particles is described by principles such as quantum mechanics and particle physics, which explore phenomena like particle-wave duality, interactions between particles, and the structure of matter at the subatomic level. Teaching the term "particle" in physics often involves introducing students to the different types of particles, their properties, and their roles in fundamental physical

theories. Visual aids, particle diagrams, and simulations can help students visualize and understand particle behavior and interactions.

In linguistics, "particle" is used to describe a type of word that functions in a sentence to modify, emphasize, or add nuance to the meaning of other words or phrases. Particles in linguistics can include words like "up," "down," "on," "off," "not," "just," and "even," among others. These particles often do not have full lexical meanings on their own but contribute to the overall meaning and structure of a sentence. Teaching the term "particle" in linguistics involves introducing students to different types of particles in various languages, their grammatical functions, and how they interact with other elements of speech. Analyzing sentences, identifying particles, and understanding their semantic and syntactic roles are key aspects of teaching particles in linguistics. To teach the term "particle" effectively in both physics and linguistics, it's important to provide clear explanations, use relevant examples, and engage students in activities that allow them to explore and apply the concepts in context. Drawing parallels between the physical and linguistic aspects of particles, such as discussing how particles in physics interact like particles in language, can also enhance understanding and bridge the gap between the disciplines.

Table 8. **Phylingsitics terms (Momentum) usage**

Momentum (V+N)	In physics, momentum is the product of an object's mass and velocity, representing its motion.	In linguistics, "momentum" can be used metaphorically to describe the speed or progress of language change, discourse, or communication strategies.	Latin	Momentum	• Pictorial in Physics • Contextual in Linguistics

"Momentum" has distinct meanings in physics and linguistics, reflecting its application in both scientific and linguistic contexts. In physics, momentum refers to the quantity of motion possessed by an object. Teaching momentum in physics involves explaining its definition, units (kilogram meters per second, kg m/s), and how it relates to the motion of objects. Demonstrations involving collisions, such as billiard ball interactions or experiments with carts on tracks, can help students visualize and understand momentum conservation principles.

In linguistics, momentum is metaphorically used to describe the flow or progression of discourse or conversation. It refers to the energy, speed, or force with which a conversation or narrative moves forward. Teaching momentum in linguistics involves discussing how linguistic elements such as tone, pacing, transitions, and topic shifts contribute to the momentum of a conversation or text. Analyzing dialogues, speeches, or written narratives can help students identify instances of momentum and understand its role in communication dynamics. Teaching the term "momentum" to students of science and linguistics necessitates emphasizing its relevance and use in both subjects. To increase knowledge, use mathematics and real-life situations, such as vehicle wrecks. Introduce the metaphorical term "momentum" to students studying linguistics to explain the power or impetus underlying language changes or trends. Discuss how particular language alterations gain traction in society, using historical

examples or sociolinguistic studies to show. The term "momentum" can be effectively taught in both physics and linguistics, it's important to provide concrete examples, encourage active participation through discussions or activities, and draw connections between the scientific and linguistic aspects of momentum. Exploring real-world applications, such as sports commentary (linguistics) or car collisions (physics), can also make the concept more relatable and engaging for students across disciplines.

Table 9. **Phylingsitics terms (Frequency) usage**

Frequency(V+N)	In physics, frequency refers to the number of cycles or oscillations of a wave per unit of time.	In linguistics, frequency can be used to describe the occurrence or usage of linguistic elements, such as word frequency or frequency of syntactic structures	Latin	*frequentia* "	• Pictorial in Physics • Contextual in Linguistics

In physics and linguistics, the term "frequency" has distinct yet related meanings, reflecting its usage in different contexts within each discipline. In physics, "frequency" refers to the number of cycles or oscillations of a wave or vibrating object that occur in a given time period. It is measured in hertz (Hz), where one hertz corresponds to one cycle per second. Frequency is a fundamental property of waves and vibrations, and it determines characteristics such as pitch in sound waves and color in light waves. Teaching frequency in physics involves explaining its definition, units, and how it relates to wave properties. Visual aids, sound demonstrations, and experiments with oscillating systems (like tuning forks or wave generators) can help students grasp the concept of frequency and its role in wave phenomena. In linguistics, "frequency" is used to describe the rate or occurrence of linguistic elements such as words, sounds, or grammatical structures within a language or speech sample. It refers to how often a particular element appears relative to others and can indicate patterns, preferences, or emphases in language usage. Teaching frequency in linguistics involves analyzing corpora of language data to determine word frequencies, collocations, or usage patterns. Students can explore frequency lists, word clouds, or statistical analyses to understand how frequency influences language comprehension, production, and variation. To teach the term "frequency" effectively in both physics and linguistics, it's important to emphasize the quantitative aspect of frequency in physics while highlighting the qualitative and analytical aspects in linguistics. Providing examples from everyday experiences (like music, speech patterns, or digital communication) can help bridge the gap between the disciplines and demonstrate the relevance of frequency concepts in different contexts. Encouraging students to explore frequency in their own language usage or through hands-on experiments with waves can deepen their understanding and appreciation of this versatile concept.

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Conclusion

The semanto-pedagogical analysis of jargons in phylingsitics reveals a complex interplay between semantic meaning and pedagogical strategies within the field of linguistics. Through this research, we have explored the nuanced meanings and instructional implications of key jargons used in the study of language and communication. The analysis has highlighted the importance of understanding not only the semantic nuances of linguistic terms but also their pedagogical relevance in teaching and learning contexts. One significant finding of this study is the diverse range of meanings that linguistic terms can encompass, from phonetic elements like phonemes and allophones to broader concepts such as morphemes, syntax, and discourse. These jargons form the building blocks of language analysis and play a crucial role in shaping how language is taught and learned. By delving into the semanto-pedagogical aspects of these terms, educators can develop more effective teaching strategies that cater to learners' diverse linguistic needs and cognitive processes. Furthermore, the research underscores the need for continuous exploration and refinement of pedagogical approaches in linguistics education. Incorporating semanto-pedagogical analyses into curriculum design, instructional materials, and language teaching methodologies can enhance students' comprehension, critical thinking skills, and linguistic proficiency. This research contributes to the ongoing discourse on effective language teaching practices and provides valuable insights for educators and researchers in the field of linguistics.

Teaching the jargon of physics terms used in linguistics involves innovative strategies that bridge the gap between these disciplines. Integrating analogies, visual aids, and interactive examples can facilitate understanding. Analogies between physics concepts like waves and linguistic patterns help students relate new jargon to familiar terms. Visual representations, such as diagrams and spectrograms, illustrate how physics principles apply in linguistic analysis. Interactive activities, like analyzing speech patterns using frequency analysis tools, provide hands-on learning experiences. Contextualizing physics jargon within language analysis tasks and encouraging multidisciplinary discussions deepen comprehension. Technology tools and online resources further enhance exploration and application of physics-related jargon in linguistics. These diverse strategies cater to varied learning styles and foster a deeper understanding of the interdisciplinary connections between physics and linguistics.

Moreover, The study reveals that teaching physics jargon effectively requires strategies that make complex concepts accessible and engaging for students. Here are some strategies for teaching physics jargon: Relate physics jargon to familiar concepts or everyday experiences. For example, explain electromagnetic waves using analogies with water waves or sound waves. Relating abstract jargon to tangible experiences helps students grasp the underlying principles. Use visual aids such as diagrams, animations, and models to illustrate physics jargon. Conduct hands-on demonstrations or experiments to show concepts in action. Visualizing abstract ideas enhances understanding and retention among students. Incorporate interactive activities, simulations, and virtual labs to allow students to explore physics concepts firsthand. Encourage inquiry-based learning where students can manipulate variables, observe outcomes, and draw conclusions. Interactive learning experiences make

jargon more meaningful and memorable. Connect physics jargon to real-world applications and phenomena. Show how concepts like force, energy, and momentum are relevant in everyday life, engineering, technology, and scientific research. Highlighting practical applications makes jargon more relatable and motivates students to learn. Break down complex jargon into manageable chunks and scaffold learning through structured lessons. Provide clear explanations, step-by-step instructions, and opportunities for practice and review. Offer constructive feedback and encourage students to ask questions and seek clarification. Leverage technology tools such as interactive simulations, educational apps, online videos, and digital textbooks to supplement classroom teaching. Online resources provide additional explanations, simulations, and practice exercises that reinforce understanding of physics jargon. Foster a collaborative learning environment where students can work in groups, discuss concepts, and solve problems together. Encourage peer teaching and peer-to-peer explanations of physics jargon, which enhances comprehension and communication skills. By implementing these teaching strategies, educators can make physics jargon more accessible, meaningful, and engaging for students, fostering a deeper understanding of fundamental concepts in physics.

Reference:

Asgari, A. (2011). The Type of Vocabulary Learning Strategies Used by ESL Students in University Putra Malaysia. English Language Teaching, 4,2, 84-90.

Etkina.E, and A. Van H. (2001). Proceeding in Physics Education Research Conference, edited by S. Franklin, J. Marx, and K. Cummings (*American Institute of Physics*) pp. 17 – 21.

Coetzee J.M., 1992, Newton and the Ideal of a Transparent Scientific Language (1982), in: Dubling the Point: essays and interviews, ed. by D. Atwell, USA, ss. 181-194.

Chi, M. T., & Rees, E. T. (1983). A learning framework for development. *Contributions to human development*, *9*, 71-107.

Casal, S. (2008). Proceedings from IASCE Conference on Cooperative Learning in Multicultural Societies: Critical Reflections. Turin. Italy.

Chamot, A. U. & El-Dinary, P. B. (1999). Children's Learning Strategies in Language Immersion Classrooms. The Modern Language Journal, 83, 3, 319 – 338.

Choudhury, A. S. (2010). Teaching Vocabulary in the ESL/EFL Classroom: Central Pedagogical Issues. Modern Journal of Applied Linguistics, 2,1, 306-316

Halliday M.A.K., On Language and Linguistics, Continuum: London - New York, s. 139-174.

Heinz A., Historia językoznawstwa, Warszawa 1979

Heisenberg W., 1971, Physics and Beyond: encounters and conversations, Harper and Row (in Polish translation: Ponad granicami, Warszawa 1979).

H. T. Williams, (1999). American Journal of Physics 67, 670

Loranc-Paszylk, B. (2009). Integrating Reading and Writing into the Context of CLIL Classroom: Some Practical Solutions. The International CLIL Research Journal, 1, 2, 47-53

Mitchele, R. & Myles, F. (2004) Second Language Learning Theories . 2nd ed. London: Hodder Arnold.

Nunan, D. (1999). Second Language Teaching & Learning. Boston:: Heinle & Heinle Publishers.

Whorf B. L., 1956, Language, Thought and Reality, ed. by John B. Carroll, The Massachusetts Institute of Technology (in Polish translation: Język, myśl, rzeczywistość, Warszawa 2002).