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PHONOSEMANTICS AND SYNTACTIC SENTENCE STRUCTURES: IMPLICATIONS FOR LANGUAGE ACQUISITION IN LEARNERS AGED 10–20

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Abstract

Phonosemantics, the study of motivated sound-meaning relationships including phonesthemes, sound symbolism, and iconicity, intersects with syntactic complexity through rhythmic patterns, prosodic flow, phonetic density, and lexical choices that characterize simple, compound, complex, and compound-complex sentences. For language learners aged 10–20, awareness of these connections can assist the acquisition of sentence variety, improve writing fluency, enhance reading comprehension of structurally complex texts, and support lexical development through sound-meaning relationships. This article synthesizes the relationship of sound symbolism and syntactic development and proposes an integrated pedagogical framework tailored to adolescent and young adult L2 learners.

Keywords:(*Phonosemantics, phonoesthemes, prosodic iconicity, syntactic complexity, sentence structures, L2 grammar instructions)*

Introduction

While the linguistic sign is often considered arbitrary, phonosemantics highlights non-arbitrary linkages: front vowels with smallness/sharpness, back vowels with largeness/roundness, and specific consonant clusters (phonesthemes like sl- associated with low friction or sn- for nasal actions.

Sentence structures vary in complexity:

- Simple Sentence: One independent clause (direct, rhythmic punch).
- Compound Sentence: Independent clauses with coordinating conjunctions that create balanced flow.
- Complex Sentence: Independent and dependent clause(s) in which embedding can be created through various subordinating conjunctions.

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- Compound-Complex Sentence: Two or more independent clauses joined with at least one dependent clause that creates a rich effect and diverse rhythm.

Phonetic and prosodic characteristics are affected by the construction of different types of sentences. For instance, brief sentences that are simple can be used to promote clarity of thought, whereas sentences that are longer in length and complex may facilitate some particular transitions. Making a connection of phonosemantics to these aspects of the types of sentences may assist the language learners (aged 10-20) in academic writing, narrative discourse analysis, and L2 syntax.

Literature Review

Phonosemantics and Sound Symbolism

Sound symbolism aids in vocabulary acquisition and classification throughout different age groups. Phonesthemes offer statistical guidance that enhances vocabulary. Furthermore, Iconicity extends beyond single words to prosodic modulation (e.g., lengthening sounds for 'big' concepts) and multimodal expression. In acquisition, it supports generalization and retention with benefits observable in older children and adolescents through metalinguistic awareness (Imai & Kita, 2014; Imai et al., 2008).

Empirical studies show that awareness to sound symbolism facilitates early verb learning and generalization for school-age children and adolescents (Imai et al., 2008; Nielsen & Dingemanse, 2020). Imai and Kita (2014) proposed the sound symbolism bootstrapping hypothesis that argues that non-arbitrary sound-meaning mappings assist language learners in detecting patterns and acquiring words more effectively and effectively followed by developmental stages through explicit metalinguistic awareness.

Syntactic Complexity in Language Development

Learners progress from simple to compound, complex and compound-complex sentences with milestones tied to cognitive growth. In addition to this, complex sentences (with subordinators) challenge working memory and comprehension, but are essential for academic literacy. In L2 contexts, adolescents benefit from explicit instruction in clause combining as they develop stronger metalinguistic skills. Prosody and rhythm help disambiguate and produce these structures naturally (Maamuujav, 2021; Balthazar, 2023).

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Studies on adolescent L2 writers indicate that syntactic complexity grows with age, proficiency, and focused instruction in clause combining which aids in academic writing advancement (Maamuujav, 2021). Prosodic indicators are crucial for assisting learners in identifying clause boundaries and generating more intricate syntactic formations (de Ruiter et al., 2018).

Structures

Rhythmic iconicity: Basic sentences frequently present phonological aspects with great impact like plosives /p/, /k/, /t/ for clarity. Similarly, compound sentences utilize coordinating conjunctions that may convey specific meanings like 'and' for adding elements while complex sentences employ subordinators (if, since, as) that is linked with dependency.

Lexical-phonetic density: Sound-symbolic terms (phonesthemes or ideophones) integrate more seamlessly into specific structures such as vivid simple sentences for onomatopoeia or intricate ones for elaborate description.

Assistance in Language Acquisition: Intuitions about sound and meaning help learners to comprehend prosodic iconicity like pitch, intensity and duration that supports the generation of longer sentences (de Ruiter et al., 2018; Auracher, 2019).

Iconicity is a concept that functions on various aspects encompassing syntactic and prosodic features. For individuals between 10 and 20 years old, this connection enhances their cognitive development which indicates that younger adolescents (10–13) engage in implicit pattern recognition whereas older adolescents (17–20) display creative production through explicit analysis (de Ruiter et al., 2018).

Research Objectives

The objectives of the study are:

1. To examine how particular phonetic characteristics and prosodic elements like rhythm and intonation at the ends of clauses affect learners' capacity to create, extend and comprehend sentences with different levels of syntactic complexity.
2. To determine if an explicit eight week intervention combining phonosemantic training and syntactic instruction leads to significantly greater improvements in sentence variety, accuracy, fluency and syntactic competence in comparison to traditional grammar instruction.

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3. To investigate the ways in which sound-symbolic lexical items facilitate or constrain their synthesis into simple sentences compared to more structurally complex sentences (compound, complex, and compound-complex).
4. To investigate how various age stages vary in their development of language acquisition in terms of the relationship between sound symbolism and syntactic sentence forms.

Research Questions

1. How do particular phonetic characteristics and prosodic elements affect language learners' skills in particular age groups in forming, elaborating and understanding sentences with different levels of syntactic complexity?
2. In how many ways does a specific 8-week intervention that combines phonosemantic training with syntactic instruction lead to improvements in sentence accuracy, variety, fluency, and syntactic skill in students of a particular age group compared to conventional grammar teaching?
3. How do sound-symbolic words aid or limit their incorporation into simple sentences compared to more complex sentence structures (compound, complex, and compound-complex) among language learners?
4. In what ways do various developmental stages vary in language learning development in relation to the link between sound symbolism and syntactic structure?

Research Methodology

Research Design

This research utilized a mixed-method quasi-experimental approach which is also referred to as non-equivalent controlled group design. The research design was comprised of a pre-test/post-test control group framework and qualitative feedback. The quantitative component assessed measurable improvements in syntactic skills and the intervention's impact while the qualitative component investigated learners' perceptions and experiences.

Participants

The research involved 180 English language learners aged between 10 and 20 years, with 60 participants in each age group: 10–13, 14–16 and 17–20. Participants were selected from government and private educational institutions in Okara, Pakistan, and were split into two groups: Controlled vs. experimental.

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Controlled Group (n=90) underwent conventional grammar teaching. Participants came from two major L1 backgrounds (Urdu, Punjabi) and possessed intermediate levels of English proficiency. Stratified random sampling was implemented to maintain balance across gender, age and skill level.

Intervention

The experimental group participated in an 8-week program (with two 45-minute sessions each week). Every session clearly connected phonosemantic components (sound symbolism, phonesthemes, prosody) to sentence structures:

- Weeks 1–2: Simple sentences combined with sharp plosives, brief vowels and a staccato tempo.
- Weeks 3–4: Compound sentences used with coordinating conjunctions and even prosody.
- Weeks 5–6: Complex sentences joined with multiple conjunctions causing fluid transitions and intonation for incorporation.
- Weeks 7–8: A combination of complex-compound sentences with multi-dimensional phonetic and prosodic integration.

Activities comprised sound-symbolic word pairing, rhythmic imitation, sentence elaboration tasks, creative writing involving phonesthemes and speaking exercises linked with prosodic elements. The controlled group worked on the traditional way of combining clauses without the intervention of phonosemantic elements.

Instruments

The research employed two primary tools for gathering data. The Phonosemantic Sensitivity Test which was conducted as both a pre-test and post-test that included a pseudo word association task and phonestheme recognition consisting of 40 items. Moreover, this evaluation measured students' capability to identify and connect sound-symbolic patterns to meanings while Syntactic Competence Battery test was given both before and after the intervention that consisted of three parts: tasks for sentence formation and transformation, oral production through recorded narratives and reading comprehension tasks with texts.

Quantitative Data:

Prosody Analysis

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A hybrid perceptual acoustic method was employed for prosody analysis to explore the integration of phonosemantic characteristics with syntactic frameworks. Speech samples were gathered from every participant. In pre-test and post-test stages, the participants generated various sentences ranging from of simple to compound, complex and compound-complex sentences. Audacity and ELAN software were used for participants' recordings and primary annotations were made. The analysis was done in terms of pauses, stress positioning, perceived intonation patterns and transitions at clause boundaries. Montreal Forced Aligner and Gentle aligners were used to conduct forced alignment to achieve more accurate data. The use of these aligners was significant in the way they provided precise timing and pause measurements at the syllable level that is crucial for analyzing rhythm.

In addition to the acoustic measures, perceptual ratings were carried out by two to three trained raters using a validated analytic rubric. The rubric focused on key phonosemantic-prosodic features including the perceptual rating rubric that focused on three key aspects: the effective use of staccato rhythm in simple sentences, the smoothness of transitions and appropriate intonation patterns at clause boundaries in complex and compound-complex sentences and iconic alignment between prosody and syntactic structure.

Qualitative Data:
Learner reflective journals, semi-structured interviews (n=30), and focus group discussions.

Data Collection Procedure
Pre-tests were administered in Week 0, followed by the 8-week intervention, and post-tests in Week 9. All oral data were audio-recorded with consent.

Ethical Considerations
Institutional ethical approval was obtained. Informed consent was secured from parents and learners. Participation was voluntary, with confidentiality assured.

Data Analysis

Quantitative Data Analysis

Quantitative data were analyzed using SPSS Version 27. Descriptive statistics, including means and standard deviations were calculated for all measures to summarize participants' performance on phonosemantic sensitivity and syntactic competence tasks. Inferential statistics were employed to address the research questions. Independent-samples and paired-samples t-tests, along with Analysis of Covariance (ANCOVA) were conducted to compare pre-test to post-test gains between the experimental and control groups evaluating the effectiveness of the phonosemantic-syntactic intervention. Two-way Analysis of Variance (ANOVA) was used to examine the main effects of the intervention and age groups (10–13, 14–

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16, and 17–20 years) as well as the interaction effects between treatment and developmental stage on learners' syntactic performance. Furthermore, Pearson and Spearman correlation coefficients along with multiple regression analyses were conducted to explore the connections between phonetic and prosodic characteristics, sound-symbolic lexical integration and proficiency in various sentence structures.

Research Findings:

Through multi-layered analysis, an evident correlation was found between sensitivity to certain phonetic characteristics and syntactic performance ($r = .68$, $p < .001$). Students generated noticeably more precise simple sentences when employing vocabulary rich in plosives and a staccato rhythm. In addition to this, embedding in complex and compound-complex sentences were improved in prosodic training. The difference in the scores of both the pre-test and post-test groups was 32%.

Additionally, the experimental group exhibited considerably greater enhancements than the control group on all measures: sentence diversity ($F(1,178) = 42.36$, $p < .001$, $\eta^2 = .19$), precision ($d = 1.12$), fluency and overall syntactic ability. Improvements were most significant in oral expression and the writing of complex and compound-complex sentences.
Moreover, sound-symbolic words (ideophones and phonesthemes) were more readily incorporated into simple sentences with a success rate of 85% than into more complex structures with the recorded ratio of 62%. Following the intervention, the incorporation of compound-complex sentences showed significant enhancement from that was precisely from 48% to 79%. Along with that, qualitative data indicated that students viewed iconic sound-meaning connections as beneficial for using subordinators, yet initially it was challenging for them to connect to these structures.

Notable differences were observed among the three developmental phases. Students between the ages of 10 and 13 demonstrated the most significant improvement in identifying implicit rhythmic and phonetic patterns. They gained notable advantages from participating in interactive and enjoyable sound-symbolic tasks, which seemed to correspond effectively with their cognitive and perceptual development. In comparison to this, individuals aged 14–16 showed the highest metalinguistic awareness and achieved significant progress in understanding complex sentences. At the same time, students aged 17–20 performed well in clear analysis and innovative use of the concepts even though they entered the intervention with a comparatively higher foundational skill level. Overall, the background of learners' first languages and their unique auditory

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processing skills notably influenced the results for each age group. Finally, significant age group differences emerged as ($F(2,177) = 18.45$, $p < .001$).

Conclusions

The research offers empirical evidence for merging phonosemantics with syntactic integration of language learners between 10 and 20 years old. Particular phonetic characteristics and prosodic patterns significantly affect learners' capacity to manage various sentence formations while sound-symbolic lexical elements turn out to be strengthening yet with peculiar initial limitations for language learners. The 8-week comprehensive intervention was significantly more effective compared to conventional grammar instruction especially in improving sentence variety and fluency. The developmental stage serves a crucial moderating function that indicates phonosemantic strategies need adjustment: more playful and implicit for younger adolescents and more analytical for older students. In general, the results confirm the theoretical connection between sound symbolism and syntactic growth emphasizing the importance of sound-meaning relationship with that of varied syntactic structures in language teaching. The findings have significant consequences for teaching English in Pakistan and related EFL environments. Curriculum developers and educators are urged to include phonosemantic awareness training to enhance grammar teaching by making it more intuitive and impactful.

References

Auracher, J. (2019). Contiguity-based sound iconicity: The meaning of words in context. PLOS ONE, 14(12), Article e0216930. https://doi.org/10.1371/journal.pone.0216930

Balthazar, C. H. (2023). Sentences are key: Helping school-age children and adolescents build sentence complexity. Language, Speech, and Hearing Services in Schools, 54(3), 682–698. https://doi.org/10.1044/2023_LSHSS-23-00010

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

de Ruiter, L. E., Theakston, A. L., Brandt, S., & Lieven, E. V. M. (2018). Iconicity affects children's comprehension of complex sentences: The role of semantics, clause order, input and individual differences. Cognition, 171, 202–224. https://doi.org/10.1016/j.cognition.2017.10.015

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Imai, M., & Kita, S. (2014). The sound symbolism bootstrapping hypothesis for language acquisition and language evolution. Philosophical Transactions of the Royal Society B: Biological Sciences, 369(1651), Article 20130298. https://doi.org/10.1098/rstb.2013.0298

Imai, M., Kita, S., Nagumo, M., & Okada, H. (2008). Sound symbolism facilitates early verb learning. Cognition, 109(1), 54–65. https://doi.org/10.1016/j.cognition.2008.07.015

Maamuujav, U. (2021). Syntactic and lexical features of adolescent L2 students' academic writing. Journal of Second Language Writing, 53, Article 100822. https://doi.org/10.1016/j.jslw.2021.100822

Nielsen, A. K. S., & Dingemanse, M. (2020). Iconicity in word learning and beyond: A critical review. Language and Cognition, 13(1), 99–126. https://doi.org/10.1017/langcog.2020.22