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CROSS-SENSORY LINGUISTICS: SYNESTHETIC INFLUENCES ON LANGUAGE PROCESSING

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Abstract
This current study focuses on how synesthetic experiences affect linguistic representation with a special interest in explaining how sensory modalities permeation of language and conceptual meaning play a role in constructing cross-sensory linguistic expressions. The main aims of the research are to determine the impact of synesthesia on the sensory mapping, to determine the most repeated patterns in the cross-modal associations as well as the effect of conceptual meaning on the language production. It used a qualitative research design which was concentric with a purposive sample of twelve subjects with synesthetic tendencies. Data was collected through semi-structured interviews, lexical tasks elicited by the participants, and corpus analyses. Thematic analysis was applied basing on the Cognitive Linguistics framework, Conceptual Metaphor Theory and ideasthesia framework. The results show that there is a systematic cross-modal connexion, particularly, in the domains of tactile, auditory, and visual elements, that are mediated by conceptual meaning, emotional background, and semantic consistency. The study proves that synesthetic experiences not only affect individual and overall linguistic patterns but also provide insights into the research of cognitive and psycholinguistics and language pedagogy, but have an implication on multisensory learning and language creativity.

1. Introduction

1.1. Background of the Study

Traditionally, synesthesia has been thought of as a mere perceptual peculiarity, although some seminal work by Simner (2007) redefines it as a psycholinguistic process that occurs at the intersection of language and sensory experience. Simner in her review discusses the effect of synesthetic experiences, automatic triggers by one sense by another, on linguistic symbols, including letters, words, and phonemes, and reveals that language artifacts independently contribute to the occurrence of cross-sensory experience. This is because this way of doing it repositions synesthesia as simply about sensory mixing, but as a way of getting a glimpse of cognitive processes that relate perception and language. Simner stipulates that exploring synesthesia using psycholinguistic tools, it will be possible to understand how concepts, sounds, and written representations are encoded and decoded in the brain and that the phenomenon in question is not a side interest but an example of how the language is generally represented and processed in the brain (Simner, 2007).

Following the traditions of cognitive linguistics, new meta-analytic research by Winter and Strik-Lievers (2025) examines the way in which sensory

links are stored in the composition of language per se. Their meta-analysis of linguistic synesthesias expressions in language where one of the sensory modalities is linguistically allotted to the other (e.g., smooth melody with touch and sound together) is based on data in thirty-eight datasets in fourteen languages. Instead of promoting a naive hierarchical approach to the senses, their results indicate that the patterns of sensory mappings in language are subtle and asymmetric and that language expressions of sensory experience are indicative of core cognitive biases in the way that humans systematize sensory material in the expression of sensory experience through language. This piece of work makes synesthetic language not a rare metaphorical ornament but one of the systematic language but suggests that the cross-sensory interactions are widespread in everyday language and semantic structure (Winter and Strik Lievers, 2025).

Studies that have provided a bridge between synesthesia and other more general cross-modal associations have provided valuable insights into language processing in terms of sensory integration. Research indicates that non-synesthetics populations also tend to have their cross-modal correspondences, including the association of sounds in the form of pitch with visual attributes, like brightness or shape. An example is that the synesthetes are more sensitive to sound-shape correspondences than non-synesthetes; this suggests that synesthesia may be an exaggeration of universal cross-sensory patterns, and not a separate phenomenon. It implies that the processes that lie behind the occurrence of synesthetic experiences are possibly closely interconnected with the basic cognitive associations of the sense modalities that are also projected into the understanding of language and conceptualization (Schnall et al., 2016). These results help to suggest that cross-sensory interactions are an inherent component of mapping meaning onto language, which offers a more expansive cognitive context in which to study linguistic synesthesia.

Extensive empirical research also shows structural character of sensory associations of language components. Cuskley, Dingemanse, Kirby, and van Leeuwen (2019) found strong patterns of association between particular vowel phonemes and particular color associations in an extensive study of vowel-color correspondences in more than 1,000 individuals. They find that acoustic and categorical phonological properties affect these cross-modal correspondences meaning that elements of language like phonemes are strongly connected to sensory representations in a manner that is not directly connected to their traditional phonetic functions. It is important to note that the stronger associations were observed in the case of synesthetes, yet numerous cross-sensory mappings existed in the rest of the sample population, which implies the idea that cross-sensory mappings are not confined to synesthetic individuals only, but they are connected to the general patterns of language perception (Cuskley et al., 2019). This highlights the applicability of the cross-sensory integration to the study of the linguistic structure on a small scale, namely, phonological level.

Theoretical viewpoints to complement empirical mapping research underline the importance of conceptual and semantic processes of cross-sensory association. This phenomenon is emphasized by the ideasthesia notion in which conceptual meaning causes sensory experiences, and it is apparent that synesthetic effects frequently rely upon the semantic definition of stimuli, and not on their sensory qualities. The ideasthesia research indicates that even linguistic meaning as such can be the key trigger of sensory experiences and it is possible that the processing of language and the representation of sensory experiences are deeply interconnected. This implies a great deal to the linguistic theory as it posits that the cognitive processing of meaning can prompt the sensory representations which are manifested in the synesthetic experience as well as in normal semantic comprehension. Ideasthesia is an opposing idea to classic sensory explanations and is consistent with the facts which prove that semantic context plays a critical role in the process of integrating sensory information into language knowledge (Nikolić et al., 2012).

Recent studies have given significant clues on the lexical and conceptual character of linguistic

synesthesia and instead of focusing on the perceptual interpretation approaches, they have emphasized the semantic mapping processes as well. According to Zhao, Ahrens, and Huang (2022), linguistic synesthesia must be viewed as a form of conceptual metaphor where lexical expressions referring to one sense domain are applied in a systematic manner to describe other sensory domain experiences. Their lexical-conceptual explanation which is based on Conceptual Metaphor Theory demonstrates that these mappings are not arbitrary sensory combinations, but they are structural equivalences between areas of meaning. An example is such a phrase as soft green or sweet voice, where a lexicalized sensory concept that has become historically conventionalized is at work as opposed to a real-time sensory induction. It also underscores the role of studying synesthetic linguistic expression in terms of semantic theory and conceptual mappings and the fact that semantic terms in language have a meaning since they belong to larger conceptual networks and not solely due to their sensory form (Zhao, Ahrens and Huang, 2022).

The other increasingly popular body of research focuses on the question of how embodiment and strength of sense shape linguistic synesthesia, which empirically models conceptual embodiment in lexical semantics. Researchers suggested the existence of a quantifiable measure called Perceived Strength of Embodiment (PSE) in a study of Language Sciences (2025) aimed at assessing the conceptual connection between sensory adjectives and embodied experiences. This model contradicts the classic modality-based models by showing that sensory words can be associated in different ways with one or more of the sensory domains with differing levels of embodiment – e.g., taste adjectives have been shown to be reproducibly associated with touch and touch with smell – which cannot be predicted by hierarchical models. The findings underline the role of embodiment in the insertion of sensory perception into language, which implies that cross-sensory mapping during linguistic synesthesia is affected by conceptual embodiment rather than a strong sense of sensory modality division (Language Sciences, 2025).

Cross-cultural and corpus studies also provide evidence of language-specific differences in the directions of synesthetic mapping, which shows that linguistic synesthesia can be defined by conceptual and cultural aspects. An example is studied that compared synesthetic compounds in Mandarin and Korean that has shown that there are directional patterns such as taste – touch – smell that conflict with previous notions that synesthetic compounds are hierarchical with lower senses dominating higher senses. According to Zhao and colleagues (2024), the synesthetic directionality and frequency of various languages can be viewed as a result of the cooperation between embodied cognition and language-specific usage conventions, and not neurocognitive hierarchies in general. These results highlight the multifaceted nature of cross-sensory linguistic phenomena and demonstrate that sensory mappings in language differ between linguistic communities and cultural contexts and that the process of conceptual structuring and use of language is dynamic (Zhao et al., 2024).

In addition to sensory mappings, cognitive studies indicate that the semantic processes behind synesthetic phenomena are major factors in relating sensory modalities to conceptual language. High-level semantic processing is suggested to be important in cross-sensory effects by the concept of ideasthesia, the evocation of sensory concurrents by the meaning of a stimulus or the concept of a stimulus. Nikolic (2009) also suggests innovating ideasthesia, as sources of numerous synesthetic experiences, as conceptual instead of low-level sensory co-activation, and point out that the extraction of meaning is essential in the invocation of sensory experiences. Such conceptual view is similar to linguistic synesthesia when the meaning of words seems to be activated and cross-sensory associations. In this way, ideasthesia enlightens the role of semantic networks not only of sensory overlap familiarity but also of cross-modal phenomenon in language, which is the profound degree of perceptual, cognitive, and linguistic coding entanglement (Nikolic, 2009).

1.2. Statement of the Research Problem

Although there is increased interest in synesthetic experiences, little has been done to incorporate cross-sensory perception into language expression, especially the influence of synesthetic experience in creating systematic correlations between sensory modalities and the contribution of conceptual meaning to these processes. The data analysis of the participants showed that synesthetic people always produce cross-modal expressions which are not accidental but organized on the basis of cognitive, semantic, and emotional concepts. Nevertheless, the recent linguistic and cognitive research has been mainly concentrated on the general cross-modal correspondence or perceptual side of synesthesia with little reference to the systematic patterns and conceptual mediation that occurs in linguistic production. This paper seeks to solve this issue by looking at the effects of the synesthetic experiences on the structure of a language and showing the interaction between the perception of senses, semantic coherence and conceptual structures that shape the cross-sensory linguistic expression.

1.3. Research Objectives

1. To investigate the impression that synesthetic experiences produce on the mapping of sensory modalities in language.
2. To examine the tendencies of inter-sensory associations in linguistic expression among people with synesthetic propensity.
3. To examine the effects of conceptual meaning on the formation of language through sensory experience.

1.4. Research Questions

1. What is the effect of synesthetic experiences on the mapping of language sensory modalities?
2. Which patterns of cross-sensory associations occur in the linguistic expression of synesthetic individuals?
3. How does conceptual meaning influence incorporation of sensory experiences into language?

1.5. Significance of the Study

The results of this research have significant implications on the study of linguistics and cognitive science in that they have shown that the experiences of synesthetic manifestations have systematic and predictable effects on language. It is revealed that tactile, auditory, and visual fields often interrelate in the expressions given by the participants, which proves that the cross-sensory linguistic mapping is not only perception-directed but conceptually oriented as well. The study relates synesthetic language use to theories of conceptual metaphor and ideasthesia, and thus bridges the gap between current research on cross-modal cognition and semantic representation by offering solid empirical data regarding the psychological principles of synesthetic language generation. This also bears some implications on the comprehension of not only the processes of synesthesia but also how multisensory integration works out in the processing of language in general. In addition to theoretical input, the study has practical implications to the field of education, language learning, and psycholinguistic applications. The understanding of the processes of incorporating sensory modalities into language may be used to develop multisensory learning tools, creative writing pedagogy, and methods to improve comprehension and memory in students using cross-sensory associations. The paper also identifies the ways synesthetic patterns can be used to create more vivid and descriptive language use in literature, communication and therapy situations. The systematic interaction between the experience of the senses and the meaning of concepts in language leads to the understanding of how cognitive and linguistic concepts can be applied in linguistic and academic fields.

2. Literature Review

The corpus-based and cross-linguistic studies of linguistic synesthesia have been developed by examining the directionality of sensory mapping. The study by Kumcu (2021) investigated the linguistic synesthesia in Turkish with a large general-purpose corpus and found that synesthetic expressions in Turkish tend to bear a hierarchical sense of sensory patterns; e.g. mappings between

the lower senses of taste and touch towards the higher senses of sound and sight; a pattern that is also consistent with pre-existing hypotheses concerning sensory hierarchy in metaphorical language (Ullmann, 1957). The study by Kumcu is valuable because it provides empirical information to the discussion on whether linguistic synesthesia functions within universal sensory hierarchies or language-specific conventions and shows that although there exist certain hierarchies, there is a lot of cross-linguistic diversity in the ways sensory domains are mapped in the lexical expression of synesthesia (Kumcu, 2021).

2.1. Meta-Analytic Language Integration Perspectives across Sensory Cross Cues

Winter and Strik-Lievers (2025) offer a meta-analysis of the linguistic synesthesias of several languages, which questions the hierarchical models of the sensory mapping. Their meta-analysis of thirty eight sets of data on fourteen languages reveals that although cross-modal formations such as smooth melody (touch – sound) do exist, many patterns cannot be placed in a strict hierarchy of lower and higher sensations. These findings imply that linguistic synesthesia may be more accurately attributed to structural asymmetries of various complexities that are determined by semantic and cultural influences than to the definite neurocognitive sensory rankings, which confounds previous theoretical proposals and extends our knowledge about how cross-sensory interactions may be produced across linguistic systems.

2.2. Synesthesia: Cross-Modal Intersection and Perception

Studies of cross-modal correspondences straddling language, perception, and synesthesia show that systematic sensory associations are made by both synesthetes and nonsynesthetes. A massive online experiment of vowel-color mappings by Cuskley, Dingemanse, Kirby and van Leeuwen (2019) revealed that categorical perception affected the associations that individuals made between phonological components of language and colors, with no significant differences between individuals with or without synesthesia. Their results indicate that linguistic features like vowel sounds may have a sensory connotation that indicates general tendencies of cognitive mapping, and is not necessarily idiosyncratic synesthetic perception. This paper contributes to the thesis that the phenomenon of synesthetic language can be an exaggeration of more general types of cross-modular correspondences in human thought.

2.3. Synesthetic Metaphor, Embodiment and Conceptual Mapping

Recent research has focused on embodied conceptual frameworks in describing the process of understanding and processing synesthetic metaphors in language. A paper published in Linguistics Vanguard used a Conceptual Metaphor Theory frame of reference to examine understanding of new synesthetic metaphors, and it was found that those expressions using traditional cross-sensory mapping principles are evaluated as being more comprehensible and suitable than those that do not. It implies that synesthetic metaphors have their foundations in the embodied cognitive structures whereby cultural and semantic conventions influence how language based on cross-sensory processing and interpretation is carried out. These ideas show that linguistic synesthesia is embodied conceptual mapping, which elucidates how individuals see sensory blending in language beyond the influences of perceptions.

2.4. Specific Languages Studies of Synesthetic Compound Words

The study of language contact and research on the phenomenon of compound words also demonstrates the differences in synesthetic phenomena in language. The study by Jo, Huang, and Kim to examine Korean synesthetic compounds revealed that synesthetic mappings are consistent with sensory directionality patterns that are comparable to those of Indo-European languages, which confirms the extended generalizability of cross-sensory integration to language. They demonstrate that the patterns of the combinations between sensorial domains decide the order of occurrence of the synesthetic compounds in even typologically different

languages like Korean, supporting the opinion that the cross-modal linguistic links are common phenomena dependent both on the universal patterns of cognition and on the conventions characteristic of the language.

2.5. Linguistic Synesthesia as Theoretical Mapping, and Not Sensory Phenomenon

Another significant branch of the literature rethinks linguistic synesthesia as being not the direct transfer of sensory experience but instead a semantic and conceptual process that has its root in metaphorical thinking. The impactful study by Huang, Ahrens and Zhao (2022) contributes to lexical-conceptual explanation of linguistic synesthesia by showing that cross-sensory expressions in Mandarin Chinese (e.g. linking sound to a visual or haptile attribute) can be more effectively described as the correlations between conceptual domains. Their study identifies linguistic synesthesia as a kind of Conceptual Metaphor theory where sensory modalities act as abstract conceptual space in which the meanings are mapped based on cognitive principles not necessarily by direct sensory coincidence. Through the analysis of large volumes of linguistic data, they discover that linguistic synesthetic mappings exhibit the same structural behaviours as conceptual metaphor and such behaviour is constrained by consistent mapping principles, which reflect the cognitive complexity of such language use. This point will refute previous neurological accounts that explained synesthesia as a neural cross-activation of perceptual aspects and place it within the conceptual semantic cognition, which offers a solid theoretical foundation to explain how language encodes cross-sensory relationships at a conceptual level (Huang, Ahrens and Zhao, 2022).

2.6. Cross-Modal Correspondences in Language and Perception Synesthesia

Empirical studies of cross-modal correspondences and synesthesia provide valuable data on the interaction of sensory aspects of language and cognition. The study by Cuskley, Dingemanse, Kirby, and van Leeuwen (2019) involved a large group of people and assessed the relationship between vowel sounds and colors in a diverse group of participants, including synesthetes and non-synesthetes. Their results depict the fact that vowel-color associations are not influenced by acoustic aspects only, but they are also shaped by categories acquired in the course of the linguistic experience, which means that structural relations in the language are at the heart of cross-sensory mappings. Further, the fact that non-synesthetes show regular patterns indicates the possibility of linguistic synesthesia being a heightened version of more general forms of cross-modal correspondences that all language users are exposed to, and not necessarily a complete idiosyncrasy. The given evidence allows seeing that the cross-sensory linguistic relationships are based on acquired perceptual categories and mental organization that determine the ways individuals correlate the sensory aspects in the use and processing of language (Cuskley et al., 2019).

2.7. Strengthening Sound-Symbolic Cross-Modes Associations Synesthetically

A number of neuroscientific investigations delve into the synesthetic sensitivity interaction with more general cognitive cross-sensory association inclinations. Lacey, Martinez, McCormick, and Sathian (2016) examined the connection between the synesthesia and sound-symbolic cross-modal correspondences – those associations between sound characteristics and other dimensions like visual form or spatial height. They were able to show via implicit association tests that synesthetes are more sensitive to sound symbolism than non-synesthetes in cross-modal domains that involve sound symbolic patterns. They conclude that synesthesia does not merely create random sensory associations but it might enhance pre-existing cross-modal cognitive systems already found in how human language is perceived. This further confirms that phenomena of synesthetic language and more general cross-sensory correspondences have cognitive roots and that synesthesia can be used to understand how language communicates with other domains of each or more senses in the mind (Lacey et al., 2016).

2.8. The Embodiment and Sensorial Conceptualization in the linguistic synesthesia

Recent research on embodiment also leads to a further insight on cross-sensory linguistic phenomena by focusing on the manner in which sensory adjectives are absorbed in conceptual structures. A case study (in the form of a model publication) published in Language Sciences (2025) suggested a new model, the Perceived Strength of Embodiment (PSE), that can determine the perceived strength of sensory adjectives to a specific sensory modality, or multiple modalities. Instead of necessarily assuming a strict hierarchy in senses (i.e. lower senses such as taste mapping onto higher senses such as vision only), this study proposes lexical concept-based embodiment as a better explanation of the role of sensory words in linguistic synesthesia. Through the study of Mandarin synesthetic adjectives and norms of modality exclusivity, the authors established that a lexical concept based model provides a better explanation to the linguistic behaviors that are observed as compared to the traditional modality based theories. Their results focus on the fact that linguistic synesthesia is not only about the features of sensory modality but is closely interconnected with the conceptual organization and structure of the language, and embodiment is its central role in the representation and processing of cross-sensory meanings in the language system (Language Sciences, 2025).

3. Research Methodology

This paper considers a qualitative research method to investigate cross-sensory linguistic phenomenon, in this case, the effect of synesthetic experience on the processing of language. The study seeks to learn the conceptual and cognitive processes that support synesthetic linguistic phrases and cross-modal associations in terms of meaning and semantic associations and representation of meanings. The research attempts to produce profound insights as opposed to quantitative generalizations by focusing on the viewpoints, experience and verbal productions of the subjects with synesthetic inclinations. The methodology used to reflect the complexity and variability of cross-sensory language, in which was fine interpretation of the linguistic patterns and conceptual associations.

3.1. Resaerch Method

Qualitative method is especially appropriate in this study as it focuses on subjective life experiences, meanings, and thinking, as opposed to quantification. The personal synesthetic experience and how it affects the use of language can be examined with the help of such techniques as semi-structured interviews, think-aloud protocols, and analysis of the linguistic data created by participants. Qualitative methods also allow the researcher to form some recurrent themes, patterns, and conceptual frames of cross-sensory association of participants and gives abundant descriptive information that can be used to understand how sensory experiences combine into linguistic forms. This method is in line with interpretivist paradigms which emphasis is on the richness of understanding rather than the scope of representation.

3.2. Data collection method

Lexical activities encourages the subjects to come up with new cross-sensory expressions, which in turn, evaluated in terms of sensory modalities mapping patterns. Also, available linguistic corpora, including the online dictionaries and literary databases, are analyzed to a certain extent to recognize cases of synesthetic expressions that occur in a natural manner, which also serve as a context to the data for the data used for this research. Such triangulation of sources makes sure that the comprehension of linguistic synesthesia is complete.

3.3. Theoretical Framework

The research follows a Cognitive Linguistics paradigm, combining the suggestions of the Conceptual Metaphor Theory (Lakoff and Johnson, 1980) and ideasthesia studies (Nikolic, 2009). The conceptual Metaphor Theory gives an insight into the process of mapping abstract conceptual domains onto the sensory experiences in the language, whereas ideasthesia focuses on the importance of the conceptual meaning in the

process of evoking the synesthetic experience. The framework also allows the research to view the cross-sensory linguistic expressions not only in the form of a perceptual phenomenon but as an indication of the underlying cognitive and semantic processes. Through these two approaches the theoretical framework places linguistic synesthesia into the context of wider theories of cognition, perception and meaning-making in language.

4. Analysis and discussion

Analysis is aimed at analyzing the impact of the synesthetic experiences on the mapping of the sensory modalities in language. Thematic coding, interpretive comparison, and frequency analysis of sensory pairings have been used to analyze the data obtained in semi-structured interviews, the lexical tasks generated by the participants, and corpus search. In all sources of data, trends were identified that indicate non random, stable cross sensory mappings that indicate individual perceptual experiences and general cognitive trends. These patterns are related in the analysis to theoretical basis of the Conceptual Metaphor Theory and ideasthesia in order to place the synesthetic linguistic behavior into more general conceptual and semantic contexts. These patterns are digged into the following sections, which will demonstrate how the sensory experiences can be used to shape the language structure, metaphorical association, and semantic representation.

4.1. Direct Effect of Synesthetic experience on sensory mapping

Among the most evident things that were revealed through the interviews with participants was the direct impact of subjective sensory experience on the ways in which individuals map sensory domains linguistically. As an illustration, one of the respondents recounted her experience with grapheme-color synesthesia as follows, indicating that, the letter s is always soft and pastel-blue almost a whisper. This sentence is an overt projection of visual symbol onto the sense of touch and color that goes beyond the normal sensory perception. When examining lexical tasks in which the subjects were requested to come up with new cross-sensory expressions, the same patterns have been found: the expressions such as crisp taste of purple, velvety sound, among others were highly generated. These mappings are not arbitrary, but they are a representation of the embodied perception of the participant, with the domains of sensory experience, touch, color, and sound being conceptually merged. These stable pairings confirm the conclusion that synesthetic experience contains a direct shaping influence on the way the modalities of sense association are coded in language. These mappings are more than mere metaphorical embellishment, and in many cases, they convey lived sensory associations, that is to show that synesthetic perception can impinge on the structure of language which people actually speak.

4.2. Methodological and Cross-Modular Tendencies of Mapping

Thematic coding of interview transcripts and lexical data showed that cross-sensory mapping has a number of systematic patterns. As an example, the tactile feel of rough, smooth, and sticky was often related to auditory (e.g., rough bass) and musical experience (e.g., smooth melody) in all the participants, irrespective of whether they considered themselves a synesthete. This trend is consistent with the cross-modal correspondences previously found in studies (Cuskley et al., 2019) except that the synesthetic individuals generated stronger and more consistent associations. As an example, one of the synesthetic individuals stated, “Sound does not remind me of touch, it is tactile, in some ways. In such a way, non-synesthetes may form such associations through cognition, whereas such associations occur to synesthetic people which tend to cause more predictable linguistic manifestations. The other pattern that appeared to be repeated was that color in language was mapped to emotional valence (e.g. bright anger, dusky calm), indicating that emotional notions can be used as an intermediary between the realms of sensation. The following systematic tendencies suggest that synesthetic experience has an effect not only on how the senses are paired but also on the uniformity with which they are paired in linguistic expressions.

4.3. Effects of Conceptual Structures on Sensory Maps

One of the themes of the analysis was the contribution of conceptual meaning to the development of cross-sensory mappings. Instead of mere overlap of the senses, the participants often mentioned meaningful semantic relations in describing the mappings. In an illustration, when describing using lexicals, some phrases such as sweet laughter or spicy silence were not selected without reason, but were the manifestations of the association of the organ of the senses and the emotional or mental context. An interviewee said, Spicy silence is piercing and painful in my mind, not what silence sounds like, but what it means to me. This remark indicates the ideasthesia view, in which the meaning in the concept inspires sensory relations, and the theoretical approach which informs this research. Although participants were asked to map seemingly unrelated areas of sensation, they tapped into the semantic consistency and the experiential reading, which points at the fact that synesthetic language is influenced by high-level cognitive associations, rather than just by the sensory proximity. This conceptual intuition underscores the fact that sensory mapping of language is essentially a conceptual process and that the experience of synesthesia underscores the aspect of meaning in building linguistic cross-sensory relationships.

4.4. Comparison and Analysis with Corpus Data

A comparison of the data obtained by participants with findings of the corpus was also conducted to establish whether the individual synesthetic mappings capture a more general linguistic activity. Corpus searches of sensory collocations (i.e. adjectives describing sensory nouns) demonstrated that some of the cross-sensory phrases (e.g. sharp scent, velvet voice) are frequently used in the natural language usage, even among non-synesthetic speakers. These collocations were, however, much more frequent and consistent in the participant data, especially when it came to synesthetes who repeatedly returned to some pairings of sensory stimuli. As an illustration, in a restricted number of literary situations the coprus would display a particular situation of velvety voice, synesthetic subjects would employ the constructions of the same situation spontaneously and consistently in diverse situations. This indicates that synesthetic experience enhances mapping inclinations which are already present in the language and may render less prevalent collocations more noticeable and fruitful to the individual speakers. These results fill the gap between personal sensory experience and general linguistic patterns, which suggests that synesthetic linguistic influence is not an individual problem but finds a reflection in the wider frameworks of semantic and conceptual language.

4.5. Recurrent Patterns of the Cross-Sensory Patterns

The participant data analysis indicated that there are recurrent trends in cross-sensory associations of linguistic expressions, indicating that there is a degree of cognitive and linguistic saliency of some sensory associations compared to others. An example would be the high frequency of tactile-to-auditory mappings when a participant said things such as rough bass, soft hum and this was also experienced among different participants. One participant clearly said, I feel sounds like passages; a drum like sandpaper on my fingers. Likewise, mappings between visual and tactile stimuli, e.g. bright smooth, dark sticky, etc. were also frequently encountered and imply that visual inputs are frequently conceptually represented using tactile metaphors. The trend is not new and the observations of Winter and Strik-Lievers (2025) who suggested that linguistic synesthesia reveals systematic cross-modal tendencies and some sensory modalities always act either as source or target domains were confirmed by this pattern. The fact that these patterns were common to all the participants indicates that synesthetic language is not the result of random mixing of senses but an event that involves systematic relationships, and shows the systematicity of cross-sensory pairings.

4.6. Personal Difference to shared Model

Although some recurrent patterns were noted, personal differences in the strength and specificity of relationships were also noticed. As an illustration, there were participants that constantly projected auditory stimuli onto tactile experiences, and there were participants that demonstrated a wider mixture of mappings, including taste, smell, emotion-based conceptual space. One of the participants told me the word mellow has a sweet taste, but also it is soft velvet at the same time, not a one sense, it is a compound experience. These results also indicate that mappings in synesthetics are much more individual even at larger levels of population. Nonetheless, although this was the case, there was a discernible convergence where sensory areas were the most common areas of combination, especially, tactile, auditory and visual. This twin consistency at the population level and variability at the individual level underlines that although synesthetic associations are individual they are limited by cognitive and linguistic principles which supports the idea of patterned cross-sensory integration.

4.7. Role in Cross-Sensory Patterns of Role of Semantic and Emotional Context

It was also revealed in the analysis that cross-sensory associations are strongly dependent on semantic and emotional context. The associations made by the participants were seldom arbitrary between the senses, but the meaning-based associations tended to be affective or conceptual coherence. As an example, such terms as harsh yellow or warm silence were based on how the participants perceived emotions of the stimuli. One interviewee replied, “Colors and sounds have a mood to me; red screams in a particular tone are violent and blue hum is soothing. This kind of semantic mediation concurs with the ideasthesia approach to cross-modal experience, where meaning and not pure sensory input motivate cross-modal experience. These observations indicate that synesthetic mapping patterns in language are conditioned by the combination of sensory perception, emotional value and conceptual meaning, and it shows the complexity of the cross-sensory linguistic patterns.

4.8. Comparison/corpus of cross-sensory patterns

Comparison to corpus data showed that a large proportion of the participant-generated associations are also found in the linguistic collocations in the corpus but the synesthetic participants frequently extrapolate or exaggerate the patterns. To illustrate it, whereas corpus contains such phrases as sweet sound or rough texture, the participants have come up with such innovative extensions as sweet melody that feels like honey or jagged silence cutting through the air. This shows that synesthetic experience does not only replicate the usual patterns of cross-sensory cross-correlations, it also produces more detailed and more contextually rich associations, as a kind of increased cognitive interaction of different sensory modalities. Also, it is possible to infer that synesthetic language is productive and rule-based by the frequency and regularity of such mappings in the data of participants, further indicating that any cross-sensory associations are both identifiable and conform to the rules of perception and thought and are not accidental or arbitrary.

4.9. Meaning as the Force behind Cross Sensory Integration

The discussion indicates that conceptual meaning would be central in establishing the way in which senses are combined into language. The respondents were always asked to give their synesthetic associations based not only on the pure sensory experiences but also by the abstract meaning of the stimuli. As an illustration, one of the respondents said, “When I hear the word serene, I see blue-green and I feel something smooth with my fingers- it is the meaning that causes me to feel that, not the letters. The fact is indicative of the ideasthesia concepts where the semantic meaning of an idea prompts the sensory experience. It demonstrates that linguistic synesthetic mappings are highly meaning mediated as opposed to being simply as a result of sensory cross-activation highlighting the relevance of studying the mental and cognitive structures defining language manifestations.

4.10. Sensory Intermodal Semantic Coherence

Additional patterns show that the participants had a consistent semantic coherence in various sensory modalities when they used linguistic expressions. As an example, such expressions as sweet voice, warm silence, bright melody are the systematic correspondence between the sensory characteristics and the conceptual sense of the stimulus. One of the respondents said, "A sound that is rough reminds me of jagged edges and a soft sound reminds me of smooth silk – the idea of the sound helps me to experience the sound in varying ways, in different senses. Such semantic consistency implies that mappings between cross-sensory are not arbitrary but are regulated by cognitive structures providing consistency between sensory domains. These results are consistent with theoretical view that conceptual meaning mediates sensory integration during language use, which enables synesthetic individuals to generate expression that are perceptionally and semantically consistent.

The statistics also indicate that abstract and emotional ideas contribute greatly to the formation of synesthetic linguistic patterns. The participants tended to associate emotional value and abstraction with certain sensual attributes, resulting in sentences like; angry red sound, melancholy grey taste. One of the respondents commented, "I feel anger as a clear, red vibration, it is not about seeing red or hearing something harsh, but how anger is conceptually. This implies that the cross-sensory associations are closely linked to conceptualized emotional experience and this implies that language is used to encode both sensory and affective information at the same time. It shows that synesthetic language portrays a multifaceted nature of meaning, emotion, and sensory mapping, and indicates the intercognitive richness of cross-modal linguistic integration.

4.11. New Ideal Conceptual Mapping Out of Traditional Collocations

Lastly, the analysis demonstrates that synesthetic subjects often came up with new cross-sensory expressions not just limited to traditional lexical collocations, thereby demonstrating how conceptual meaning facilitates creative and rule-based language use. As an illustration, expressions such as velvety echo or bitter silence were generated by the participants and are not likely to be encountered in other standard corpora but could be easily comprehended and had a logical meaning. One of the participants observed, "I do not think of whether it is a real expression, the idea makes it right and my senses fill the details. This also shows that conceptual meaning is a kind of guiding principle of involvement of sensual experiences into language that allows not only originality, but also cognitive consistency. The inference of such results supports the prominence of meaning in the process of synesthesis in language and validate the important role of ideasthesia, as the elicitation of sensory experience by conceptual content, in the development of cross-sensory languages.

5. Discussion

The results of the current study show that the synesthetic experience has very significant impact on the linguistic representation of the senses. The respondents have always shown that the senses of touch, color, sound, taste and emotion are conceptually incorporated in the process of producing linguistic expressions. These data points verify the systematic nature of cross-sensory mappings as opposed to arbitrary ones, whereas the findings of Winter and Strik-Lievers (2025) are in line with the concept of structural tendencies in linguistic synesthesia. Notably, the study also emphasizes that the mediations of the synesthetic mappings are not limited to the sensory perception only but also to the conceptual meaning, therefore it can be said that the semantic networks are the main determinant that affects the linguistic encoding of sensory information. This supports the view that language processing is multisensory by nature among the synesthetic and this provides some understanding of how cognition can combine perception and meaning.

The findings are also in line with the theoretical approaches, Conceptual Metaphor Theory and ideasthesia. The use of conceptual meaning by the participants to inform the sensory mapping shows that language is not a simple means to describe

sensory experiences but can also be used to describe more perceptual-cognitive experiences. An example of this is the use of terms like bitter silence or velvety echo, which indicate that conceptual knowledge evokes multi-sensory associations, as per the ideasthesia framework proposed by Nikolic (2009). These results build upon the previous studies to reveal that synesthetic experience stimulates cross-sensory matches, creating innovative, semantically sound language patterns. Overall, the paper highlights synesthesia as the source of insights into the interactions between perception, cognition, and linguistic representation, indicating that cross-modal language effects are not only personally represented but also conceptualized.

Conclusion

This paper finds that the synesthetic experience contributes greatly to cross-sensory language patterns that sensory modalities do not exist independently but rather interrelate in a predictable manner. The participants were always able to demonstrate that language maps tactile, auditory, visual and emotional experiences in terms of both perceptual and conceptual principles. Such mappings point out the systematicity of synesthetic linguistic activity, and indicate that synesthesia may be thought of as an extreme case of the tendency to cross-modality in cognition.

The study also establishes the fact that conceptual meaning is a mediator of language integration of sensory experience. In all participants, sensory mappings did not take place at a purely perceptual level, but were guided by the semantic or emotional value of the stimuli. The words like sharp taste of silence or warm color of laughter are good examples of how the meaning leads to cross-modal associations, which bears great testimony to the ideasthesia framework. The abstract knowledge guarantees the integrity of various senses, which make it possible to understand and express oneself creatively.

The study, in general, adds to the areas of linguistics, psycholinguistics, and cognitive science as it demonstrates the interaction of sensory perception, conceptual meaning, and the language. Recording trends in synesthetic mapping and examining the way meaning structures sense integration, this study provides theoretical, as well as empirical, information to the existing knowledge on the cognitive processes involved in the use of cross-modal language. The results highlight the importance of the investigation of the synesthetic language phenomenon to enhance our current understanding of multisensory processing, semantic representation, and creative possibilities of words.

Suggestions

The future studies may also increase the number of the participants having a greater variety in their linguistic background and types of synesthetic to provide a cross-cultural contrast and prove the patterns observed. Also, incorporating neuroimaging or psychophysical techniques can be useful in gaining more information on the neural correlates of synesthetic linguistic processing.

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