EXPLORING THE ROLE OF SYNTAX IN LANGUAGE COMPREHENSION AND PRODUCTION

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ABSTRACT

The research works on exploring the importance of syntax in language comprehension and production. The discussion uses a systematic literature review to find the connection between syntax and production and then syntax with comprehension. The study identified a gap in the recent development in the linguistic field and less exploration of syntax. The findings of the study reveal the strong relationship of syntax as it helps create a better connection for language proficiency. Syntax is fundamental for both production and understanding. Talents and perceptual-motor skills are highlighted in the integrated theories of second language acquisition, which throw doubt on more traditional notions of abstract linguistic knowledge. Furthermore, there is an urgent need for research that accounts for varying learning methods, real-world situations, and language levels to determine the nature of the relationship between production and comprehension. The complex interplay between language use and syntax is shown by the spectrum of grammatical competence. The field seems to be expanding, with a focus on understanding how individual variability impacts language processing and the nuances of syntax in different language situations. Listening ability has a strong relation to sentence production and formation when assessed in both groups. Moreover, it is evident that syntax plays an imperative role in communicating and helping the other person comprehend meaning.

Keywords: *Syntax, comprehension, production, linguistics, communication, second language acquisition*

INTRODUCTION

Syntax in language is defined as the structural set of rules that are part of a sentence. It deals with the structure and form of natural languages, like the sequence of physical gestures or spoken English in American Sign Language (Morvay, 2012). Linguistics comes under the discipline of human language and comprises three subfields. The first subfield is the forms of language, including syntax, morphology, and phonology. The second subfield is related to semantics and pragmatics. The third one is the different context it is studied in.

1.1 Syntax

Syntax provides expression to help comprehend meaning, and it demonstrates the subject-object relationship. For example, a sentence such as "The dog bit the cat" is interpreted differently from "The cat bit the dog," although they contain the same words (Matchin & Hickok, 2019). Researchers work on sentence production and immigration by breaking it down. A syntactic atom is a term used by Di Sciullo & Williams (1987). It can be considered a single word or phrase that communicates a specific meaning (Xi, 2021). In the example, 'the' is not a syntactic atom, but 'the dog' is. Syntax allows the speaker to interact with thoughts, which can be arranged as simple or small units and can be meaningful. Language is complex, and therefore, syntax helps complex and simpler sentences to be understood accurately (Brimo, Lund, & Sapp, 2017).

1.2 Background

Early researchers worked on the way efficient communication can be held as per the human mind. Cromer and Wiener (1966) discussed that the unskilled reader is unable to use syntax when reading comprehension or producing sentences. Later, Vogel (1975) added further research emphasizing that reading-impaired children had deficits. The deficits were in some areas and measured "the syntax of expressive language" and explained that there is a strong relation between reading comprehension and productive syntax (Zhang et al., 2020). The

research was further developed by Anderson (1982) and reveals that poor readers have syntactic deficiencies while writing language (Mancuso et al., 2020). There are two different methods with respect to impaired readers and the sources of the lack of performance. In 1988, Crian and Shankeiler expanded the study, explaining that researchers associate poor readers' difficulties with phonological processing deficits (Popenoe et al., 2021). The next study by Shankweiler and Crain (1989) supported the Processing Deficit Hypothesis (PDH), which mentions that unskilled readers experience difficulty in processing and retaining phonological information in working memory (Nomvete and Easterbrooks, 2020). The deficiency occurs at a different level in working memory. It keeps the information from being expressed at the necessary pace with a high-level process.

1.3 Research Aim and Objectives

To examine the role of syntax in language comprehension and sentence production.
The study aims to work on the relationship between syntax and language comprehension as well as production.

1.4 Research Gap

The existing literature focusing on the role of syntax in language comprehension and production is limited as per the research. A single study by Morgan et al. (2020) has solely focused on the topic and is unable to fill the existing gap. Significant learning changes have occurred after the pandemic, making it crucial to develop areas of change in the context of syntax in language comprehension. In the rapidly evolving landscape of human language, there is a growing need to characterize technological innovations and evolving social norms (Truckenmiller, Shen, and Sweet, 2021). The two factors need to be revisited, and understanding needs to expand on syntax functions in language use. Hence, the study plans to fill the gap in current knowledge by conducting a qualitative literature review that considers human behavior when learning a language and the way syntax plays a role when comprehending and producing a sentence.

LITERATURE REVIEW

The concept of syntax came into existence when working with monolingual children. Brimo, Lund, & Sapp (2017) coined a perspective where they helped explain syntactic development, which plays a crucial role in acquiring reading comprehension and precursor skills. It also helps build listening comprehension in bilingual children. When applying coordination, the respondents performed better on subject coordination than on object and Inferential Phrase (IP) coordination. Inferential phrase coordination is the connection between two phrases, which provides information, prior knowledge, experiences, imagination, and intuition (Van Boxtel and Lawyer, 2021).

Previous research has worked on different approaches to examine syntax in language processing. Golestani et al. (2017) used subjective analysis for the complexity, which is based on rating scales. Different approaches measure different features of a language. The variables are related to spoken words, such as utterance length and the ratio of nouns to verbs. In the utterance, the portion of function words to content words is also assessed. Several variables identified are interrelated with each other but are different for different individuals. The study measured two groups in one group: the participants with cognitive impairment and the other group without. An effective predictor of the difficulty level that resolves temporary ambiguity is a syntax surprise, which reflects the unpredictability of speech that is given in a certain context. The second approach in psycholinguistics is the ambiguous sentence structures in languages used by both groups, focusing on language comprehension and production. The sentence production and structuring are ambiguous as the sentences are left to right proportional to the degree of center embedding (Peets, Yim, and Bialystok, 2022). The syntax also plays a role in avoiding the number of different incomplete phrase structure rules, several incomplete sentences, and the average dependency distances within a structure (Rezaii et al., 2022). The findings reveal that listening ability has a strong relation to sentence production and formation when assessed in both groups. According to the analysis, it is evident that syntax plays an imperative role in communicating and helping the other person comprehend the meaning.

Thorne & Faroqi-Shah (2016) explain the brain regions that create the connection and meaning to the language. Syntax does not allow working with one specific region of the brain. It is a network of areas that involves

Broca's area (BA). As there are different stimuli and tasks related to the human language, there has been no work done on syntax as different parts of the networks are involved. Syntax has recruited different parts of the network for different aspects of syntactic processing (Pickering & Garrod, 2013). Furthermore, it involves non-linguistic processing like nonverbal learning and working memory, imitation of sequences of motor gestures, and representing and processing hierarchical structures (Meyer, Huettig, & Levelt, 2016). The functions come under the components of syntax processing, and many have argued that BA is not specific to syntax and has several other functions. The study used 12 participants who were right-handed native French speakers (seven men and five women). They started learning English at the ages of 10-12 and spent five to seven years in school. None of the participants lived in an environment where English was the primary language; hence, all were moderately fluent bilinguals. The study explains that comprehension and production, when implemented, were less proficient when compared to a native. Hence, syntax plays a crucial role in improving the comprehension and production of a language.

Mancuso et al. (2020) make it evident that further study is needed to understand the link between production and understanding across different areas of language and how it is used in ordinary discourse. Thorne and Faroqi-Shah (2016) lend credence to the division of labor hypothesis of light verb use since it was discovered that individuals with and without neurological impairments generate an equal number of these verbs. Results on assessments of syntactic and semantic abilities were greater in those with lighter verb use. Moreover, the abilities demonstrate a continuum of grammatical competence in aphasia and contradict past beliefs about the use of light verbs, expanding our awareness of the relationship between syntax and semantics in language production (Sebele-Mpofu, 2020). According to the reviewed literature, finding one's way around a language and really understanding it are inseparable. The syntax is fundamental for both production (converting ideas into morphemes) and understanding (deciphering hierarchical structures) (Ziegler & Snedeker, 2018). Talents and perceptual-motor skills are highlighted in the integrated theories of second language acquisition, which throw doubt on more traditional notions of abstract linguistic knowledge (Meyer et al., 2016). Furthermore, there is an urgent need for research that accounts for varying learning methods, real-world situations, and language levels to determine the nature of the relationship between production and comprehension (Martohardjono et al., 2015).

The complex interplay between language use and syntax is shown by the spectrum of grammatical competence in aphasia (Qizi, 2023). The field seems to be expanding, with a focus on understanding how individual variability impacts language processing and the nuances of syntax in different language situations.

Van Boxtel and Lawyer (2021) explain the sentence structure in different contexts. Comprehension, production, and syntax also revolve around specific contexts. Golestani et al. (2017) identifies the posterior middle temporal gyrus (pMTG) as responsible for decoding auditory phonological representation structures. The structures are linked with the conceptual networks in the anterior temporal lobe (ATL) and angular gyrus (AG). In production, a different computational task involves taking nonsequential conceptual information, deriving hierarchical structures (pMTG), and transforming them into sequences of morphemes via the anterior part of Broca's area (pTri in the inferior frontal gyrus, IFG). The findings emphasize the dynamic role of syntax in language comprehension and production, involving the transformation of information at different levels of linguistic processing.

METHODOLOGY

The study will employ a qualitative literature review to comprehend existing scholarly works. There have been several studies working on syntax's impact on language, which is not aligned with the research topic of the role of syntax in comprehension and production. Hence, working on prior research is deemed suitable for synthesizing diverse perspectives, insights, and findings across studies. Relevant pieces of literature will be identified through systematic searches of academic databases (e.g., PubMed, PsycINFO, Google Scholar) working on keywords like syntax, language comprehension, syntax role in comprehension, syntax role in production, and language production. The range of inclusion criteria will include peer-reviewed articles, journals, books, and reputable conference proceedings. The search strategy would be systematic to incorporate Boolean operators, truncation, and controlled vocabulary and to ensure a comprehensive and focused review.

1.5 Data Collection

As mentioned earlier, there are no or fewer studies done directly on syntax's role in production and comprehension; hence, the data will be collected. Structured interviews with different language teachers of different levels will be collected. It has previously been recommended that qualitative studies require a minimum sample size of at least 12 to reach data saturation (Poulsen & Gravgaard, 2016).

FINDINGS AND ANALYSIS

The research was conducted by 10 teachers who are teaching different languages to different levels of learners. The analysis explains the role of syntax when understanding comprehension and production of sentences. The results of the interview are stated below.

Languages	
French	2
English	7
Albanian	1

b. Class Level:

Primary level	7
Secondary level	3

The first 7 participants were English teachers and planned examples for syntax implementation. They explained through examples below:

i. The cat chased the mouse.

ii. Chased the mouse the cat

Both have the same verb, subject, and object, but the order of the second one is incorrect. The arrangement of words in comprehension and production is crucial. In the first sentence, a standard English word order, Subject-Verb-Object (SVO), is followed, making it understandable and allowing a smooth flow of information. In the other sentence, the order disrupts the meaning because of the order. All seven teachers mentioned that they were very conscious when working on teaching structures, as the parts of speeches are important topics. The altered syntax creates a momentary cognitive pause during comprehension, requiring additional mental effort to process the information (Robson & Quinn, 2014).

Participants 3, 4, and 5 explained through class examples the importance of syntax and how they provide in-class feedback to avoid errors.

i. "She don't like sandwich."

The error in the sentence is a subject-verb agreement problem. The correct form is "She doesn't". The error has a direct impact on comprehension, leading to confusion and hindering a reader's understanding. Participant 5 gave another example that she had witnessed in class.

ii. "After finishing washing his dishes, the movie was watched by John."

The sentence is incorrect because of a misplaced modifier and is a syntax error. The correct form is "After finishing washing his dishes, John watched a movie". The error affects the comprehension and the production specifically for new readers. The misplaced modifier creates confusion about who watched the movie. Also, in sentence production, the understanding of proper modifier placement is essential for constructing coherent sentences. Another example is from the French teacher, who explains that different pairs of sentences have different meanings. One example is explained below:

i. Il lit un livre. (He is reading a book.)

ii. Un livre, il lit. (A book, he is reading.)

The first standard French sentence structure (subject-verb-object) aligns with English students' expectations, facilitating easy comprehension. English learners familiar with basic French structures will find the sentence structure intuitive. The second example introduces a syntactic variation by placing the object before the subject and verb. Even though it is correct in French, the inversion poses a challenge for English learners. Hence, it explains the importance of teaching not only vocabulary but also syntactic variations for a comprehensive language.

Another participant was an Albanian teacher who explained the need for understanding the structure and syntax through the example below**:**

i. "Djaloshi lexon librin." (The boy reads the book.)

ii. "Librin lexon djaloshi." (The book reads the boy.)

The first sentence uses a standard Albanian syntax, which is subject-verb-object (SVO), which comprehends the sentence. In the second sentence, the syntactic variation can be used in the production for stylistic and poetic purposes. Both examples are correct in Albania. However, when developing it in English, the subject-verb-object border is essential.

4.1 Role of Syntax in Comprehension and Production

Syntax ensures that sentences are structured logically and helps readers understand the intended meaning when communicating. Syntax errors hinder effective communication and increase confusion (Mackay et al., 2021). Syntax allows the speaker to interact with thoughts, which can be arranged as simple or small units and can be meaningful. As languages are complex, syntax helps complex and simpler sentences to be understood accurately. Human language is unlimited as it applies the rules of syntax and can generate new sentences or phrases for expression (Brimo, Lund & Sapp, 2017).

Moreover, learning syntactic variations helps students understand cultural nuances and how language reflects specific communicative styles. The sentence production and structuring are ambiguous as the sentences are left to right proportional to the degree of centre embedding. There are also several different incomplete phrase structure rules, several incomplete sentences, and the average dependency distances within a structure. However, some of them are based on cultural nuances (Truckenmiller, Shen, and Sweet, 2021). Syntax plays an imperative role in communicating and helping the other person comprehend the meaning (Hartsuiker & Bernolet, 2015).

CONCLUSION

The discussion explores the role of syntax in the production and comprehension of human language. Syntax, as per the literature, is defined as arrangements of sentences to understand the structure of the language to create a meaningful interpretation of communication. The research aims to examine the relationship between comprehension and production. The methodology involves a systematic piece of literature on syntax, language comprehension, and production. The data was collected through interviews with different language teachers. There are different studies in the discussion that contribute to the relationship between syntax, comprehension, and production. There has been a strong positive relationship between the variables. The literature explains a strong connection between the three studied variables; Syntax has a strong correlation with production.

Moreover, there is an indirect and direct relationship between syntax and comprehension. The research concludes that syntax elevates the understanding of a language and, therefore, it is important for communicating.

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APPENDIX

1.6 APPENDIX

Demographics
a. Language you teach:
b. Class Level:

a. When reading or writing in the language you teach, are you conscious of the sentence structure and the meaning it has?
b. Can you describe a specific instance where the syntax of a sentence influenced your understanding of the message when teaching or in any other setting?
c. Can you give some examples of how a syntax error can change the meaning in the language you teach?