SciencePG
Science Publishing Group

Relationship Between Complex Syntax and Non-native Reading Comprehension

Fateme Hemati Kolavani

Department of Human Science, Shahsavar University, Mazandaran, Iran

Email address:
Fateme_300@yahoo.com

Abstract: This study aimed to investigate the relationship between complex syntax and L2 comprehension. The participants were selected from among a high school in Rasht. For this purpose, 30 learners, who were in third grade of high school (aged 17 - 18 years old), participated in this study. Having being tested by a questionnaire (20 questions that tested syntax) 16learners were strong students selected and they were allocated into experimental group and 14 students were weak students and were allocated into control group. Then both groups sat for reading test, which was a reading comprehension test from steps to understanding book. The purpose of this test was to measure the learners' reading comprehension ability. Afterwards, the scores were analyzed and strong students got good marks but weak students got bad marks. It was explored from the study that learners' reading comprehension improved more when they were provided with the syntax. It was concluded that syntactical knowledge has a positive effect on learners' reading comprehension ability.

Keywords: Syntactic, Explicit Knowledge, Implicit Knowledge, Syntactic Skills

1. Introduction

What contributes to effective non - native language L2 reading comprehension has been in the center of researchers' attention for many years? Despite the existence of numerous studies on L2 reading comprehension, the precise factors involved in L2 reading have not been researched to the extent one would expect. We examined this in learners of English as a foreign language, whose native language is Persian, and who study English in a classroom setting as opposed to a more natural second language environment. Given that the two languages are fundamentally different from each other, it gave us a good opportunity to observe how students utilize their knowledge of syntax in both Persian and English.

2. Literature Review

Nation & Snowling (2000) found a strong correlation between syntactic awareness skills and reading comprehension. These and other L1 studies will be discussed in more detail below, but they appear to indicate that the relationship between syntactic abilities and reading comprehension is still controversial. For normally developing readers – since the discussion of various reading disabilities is beyond the scope of this dissertation – there are stages that one has to go through in order to achieve skilled, fluent reading (Chall, 1983; Ehri, 1991).

There is no doubt that those children who struggle to learn to read often fail to perform well on various verbal tasks not involving reading (Vellutino, 1979; Liberman & Shankweiler, 1985). These problems are often so subtle that they may not be detected in everyday communication, and only sophisticated testing might shed light on them. Moreover, poor readers do not perform as well as competent readers in understanding oral puns and jokes (Hirsch - Pasek, Gleitman & Gleitman, 1978), and cannot detect, correct, or explain semantically and syntactically anomalous sentences (Ryan & Ledger, 1984).

Fifteen eight - and nine - year - old boys with reading disabilities and 15 with normal reading ability participated in a study of the relationships among reading disabilities, oral syntax, and temporal functioning ability (sequencing and the ability to perceive relationships in time). Each subject was given an individual battery of tests which included a measure of receptive vocabulary, five measures of oral syntactic abilities, and five measures of temporal functioning ability. Results indicated that the two groups did not differ significantly in receptive vocabulary, but that the five syntactic measures and the five measures of temporal

functioning ability were predictive of group membership. The syntactic measures and the measures of temporal functioning were significantly related to each other. Results were interpreted as supporting the theory that temporal functioning ability is an important aspect of all language and contributes to the relationship between problems in oral syntax and reading disability.

While one view, the processing limitation theory, claims a deficiency in processing and locates the problem in the "subsidiary mechanisms that are used in language processing" (Crain & Shankweiler, 1988, 168 - 169), the other view, the structural lag hypothesis, blames poor reading comprehension on a deficiency in linguistic knowledge, more precisely on insufficient syntactic abilities (e.g., Bentin, Deutch, Liberman. 1990; Demont & Gombert, 1996; Waltzman & Cairns, 2000). These two hypotheses are discussed in the sections that follow.

2.1. L2 Reading and Syntax

Fluent L2 reading is also dependent on the acquisition of grammatical processing strategies according to Bernhardt (1986) and Koda (1987). Knowing a language means knowing its grammatical rules, which often translates to "syntactic knowledge." While reading comprehension research in a foreign language draws on existing information in L1 reading, which is logical, unfortunately, most L2 studies combine the investigation of vocabulary knowledge and grammatical competence for an obvious reason: even for the most complex structures, one needs to know the words if one wants to make sense of a sentence.

Therefore, the investigation of grammatical knowledge has somehow been secondary in reading research both in L1 and L2. Nevertheless, according to studies in the field of L1 reading research, there is some compelling evidence – albeit controversial ─ that suggests a correlation between knowledge of syntax and reading comprehension (Perfetti, 1985; Tannenhaus, 1988).

In L2 reading research, vocabulary knowledge is given much greater importance than grammatical/syntactic competence. This may be because vocabulary knowledge seems so obviously critical for L2 reading. On a less obvious level, the knowledge of structures also has an important facilitative effect on reading comprehension of course (Berman, 1984; Barnett, 1986). Bernhardt (2003) noted that this critical feature of text, namely, syntax, is never even mentioned in the National Reading Panel Report (2004). This may well be because there is scant research that addresses the impact of either morphology or word order on text comprehension, or other aspects of syntax and morpho - syntax. Some recent investigation, however, has focused on the syntactic knowledge that L2 readers bring to the reading process and how such knowledge or skill influences comprehension. In the following section, we will review relatively recent studies that have been carried out in L2 reading with children and adults. 2.4.1. L2 studies with children Among recent studies on children's L2 reading development and syntactic abilities, Martohardjono et al.,

(2005) focused on structures that are considered to be milestones in the development of monolingual children, specifically coordination and subordination.

2.2. L1 Studies with Older Children and Adults

As the previous section has suggested, there are numerous studies relating children's developing syntax to their literacy skills (see references in 2.2.1.). On the other hand, research investigating adults' syntactic abilities in relation to their reading comprehension is relatively scarce. The reason for this discrepancy is because the syntactic skills of monolingual adults are rarely tested, for syntax is supposed to be mastered by everybody by a very early age. In fact, however, terms such as "adult grammar" or "adult speech" refer to language forms used by adult native speakers as opposed to less sophisticated language forms used by children. Before examining adult readers, we begin by describing grammatical skills in the older child. Most studies relate the development of literacy skills to child language development, though it is often assumed that children are linguistically mature by the time they start to learn to read (McNeill, 1970).

Their phonological system is developed, and they can say and understand the sentences that the grammar of their language allows, except for rare and complicated sentence structures. Later developments in grammar and vocabulary might be the results and consequences of literacy development (e.g., Gibson & Levin, 1975). In other words, complex syntactic structures and complex vocabulary are acquired from reading, as suggested above. Therefore, the assumption is that given the lexical and syntactic knowledge children possess by the time they start to learn to read, reading is merely a task of decoding, listening, and interpreting. This theory, however, just like the widely - held belief of linguistic maturity being complete by the age of six, is an oversimplification. In fact, there is evidence that there are areas of structural knowledge which still need to be acquired by the older child (e.g., C. Chomsky, 1969).

Gibson & Levin (1975) claim that more complex grammatical structures will be mastered only by older children and, in fact, that some structures may be so complicated that many adults do not understand them. According to these researchers "…the grammar constructed from children's spontaneous verbalizations may underestimate the nature of the rule system that they use to construct and to understand language. To get at the more complex aspects of grammar, it may be futile to wait for the spontaneous occurrence of the structure. The child will have to be confronted with these kinds of sentences and the degree of his comprehension observed." (p. 139). Even though there is a widely - held belief that children attain adult syntax at about the age of 5, C. Chomsky (1969) noted that while differences between a 5 - year - old's and an adult's grammar might not be apparent in a conversation, direct testing can reveal differences.

Her investigation supporting this claim involved 40 elementary school children between the ages of 5 and 10. In

this study, the researcher elicited information about children's knowledge of sentence subject assignment to infinitival complement verbs and found that 3 out of 14 children who failed to show mastery of this subject were over 9 years of age.

This suggests, according to C. Chomsky, that "active syntactic acquisition is taking place up to the age of 9 and perhaps even beyond" (p. 121). In an attempt to verify whether certain syntactic structures are, in fact, part of the ordinary adult grammar, Sanders (1971) tested a group of adults who were believed to be sufficiently linguistically competent. Participants were supposed to respond to semantically simple sentences involving structures with the verbs "ask" and "tell." She employed these verbs in four different syntactic constructions in the following way: In the first, the construction followed the minimal distance principle since the subject of the complement verb was the noun phrase that most closely preceded it. (1) John asked/told Bill to leave. In the second type the sentence included an interrogative pronoun and a subject in the complement clause. (2) Tell/ask me what color this is.

The third type included a noun phrase as the subject of the complement clause, but the interrogative pronoun and the verb have been omitted from the complement clause: (3) Ask/tell me the color of this book. The fourth sentence type included an interrogative pronoun and an infinitival verb in the complement clause, but omitted the subject of the complement clause: (4) Ask/tell me what to build with the blocks. Even though only 5% of the answers given by the 40 adults were inaccurate, 80% of the errors resulted from the 4th type of construction containing the verb "ask". Surprisingly, about half of the 40 participants gave at least one incorrect response to questions that required knowledge of language forms thought to be commonly known to adult native speakers of English. Sanders, therefore, proposed that there might be other syntactic structures that are not understood by some adults. She also implied that there might not be an adequate basis for the evaluation of children's language development given that it is unknown which syntactic forms are part of ordinary adult comprehension.

In another study involving adults, Cox (1976) designed an experiment – prompted by the unavailability of adequate readability formulas that take into consideration syntactic structure (also see Chapter 3) – that concentrated on the ability of adults to read syntactically complex materials. She compared monolingual English Adult Basic Education (ABE) readers with college juniors and seniors. Cox's main hypothesis was that the mastery of syntactic complexity in ABE readers is not as advanced as that of the college readers. Furthermore, based on previous research she hypothesized that relative clauses belong to the most difficult constructions, particularly when the relative clause interrupted the Subject - Verb sequence of the independent clause. (These are the so called "centrally embedded" relatives that will be further discussed in Chapter 3.) Cox constructed a test that included the active and passive voices, complex questions, negatives, and passive negative sentence

types. The purpose for testing these constructions was to determine whether or not an order of difficulty of these types existed for ABE readers as it does for children.

In Cox's results, the ABE readers made four times as many errors on the test as the college group did. Complex questions were the most difficult constructions for both groups, though the ABE readers missed 22% of these test questions, while the college group missed only 5%. The average time to complete the test for the ABE group was 42 minutes, while the college group averaged 17. Even though Cox controlled for vocabulary knowledge, she found that even those readers who were 100% familiar with the words still made errors, indicating that syntax played a role in their failure to carry out the task. She also found that the order of acquisition and difficulty for adults is not the same as for children.

The implications of the study are that ABE readers may need explicit instruction in syntax. This is an important finding given that the present study also investigates L2 readers' syntactic knowledge and their reading comprehension level. It is plausible to assume that L2 readers might need explicit syntactic training in order to familiarize them with the more complex sentence structures used in written language. These issues will be addressed in Chapter 6, while in the next section we begin discussion of our focus, non - native reading comprehension.

2.3. The Relationship Between L1 and L2 Reading

In this section we will look at various overlapping processes that are involved when reading in a non - native language. Just as in the discussion of native or first language reading, we can divide these processes into lower level and higher level skills. Lower level skills involve phonological and orthographic processes in the context of language transfer from L1 to L2 during reading tasks, as will be discussed below.

While the theoretical models of the reading process in L2 are greatly informed by our understanding of the basic cognitive and linguistic processes involved in L1 reading, there are dimensions to L2 reading that are unique. Koda (1994) identified three conditions that distinguish L2 reading from L1 reading: a) the influence of prior literacy; b) limited linguistic knowledge, and c) cross - linguistic effects of lower level processes. In this section we will begin our discussion with this last condition, i.e. cross - linguistic effects because we will better understand higher level processes if we briefly elaborate on lower level processes, as their importance for successful L2 reading comprehension is crucial.

3. Methodology

3.1. Participants

The participants of the study comprised 30 female learners (whom are in fourth and fifth grade of elementary school aged 10 - 11 years old) among high school students in Rasht.

Strong students were experimental and weak students were control group. They were selected among 78 learners from four classes who studied in computer course. All the participants went to the English classes in Institution.

3.2. Material

A syntax test was used. This test is compromised of 20 (true, false) grammar questions. Question 1 is about using correct form of (ing and must) in sentence.

The second was a reading test that was derived from advanced steps to understanding. It was compromised 3 reading from steps to understanding. The first one is included four (T F) questions and eight written questions and four fill in the blanks.

3.3. Procedure

The test administered for measuring the degree of the participants' proficiency was a paper - and - pencil test. Hence, the participants' had to answer the questions in specified answer sheets. The time allowed for answering syntax test was 60 minutes.

After one week a reading test was given. Time allocated for answering the test was 100 minutes. The answers were collected and relationship between two tests were analysed.

We follow them here.

3.4. Methods of Analyzing Data

Our study might also have benefited from the more current SEM statistical the nature of the hypotheses of the study required that the obtained data be analyzed using the descriptive and the inferential statistical methods. On the one hand, the descriptive statistics were used here for sorting, displaying and describing the data. This included the calculation of simple statistical attributes such as the measures of central tendency including 'mean'. On the other hand, the data were interpreted via applying the inferential statistics which consisted of calculating a t - test for showing the possible difference between the means of the posttests of the study, also, analyzing separately the covariance coefficients between the pretest and the posttest scores of the experimental and the control groups of the study analysis. correlational analysis which effectively deals with data where independent variables inter - correlate.

4. Data Analysis and Findings

The Descriptive Analysis of the Data

Table (4.1). Descriptive analysis of the data of the Experimental Group of the study.

	SA	N	Mean	Std. Deviation	Std. Error Mean
Reading	+SA	16	17.0625	.68007	.17002
	- SA	14	13.8571	1.56191	.41744

This section focuses on the descriptive analysis of the obtained data in this study. Such analysis was done using the SPSS software. Table (4.1) shows the descriptive analysis for the pretest and the posttest of speaking in the experimental group of the study:

As has been indicated in table (4.1), the number of participants in the experimental and the control group of the study is 30 ($N_E = 16$; $N_C = 14$). Here, due to the specific method of calculation for the t value, the participant groups of the study had to be given a label. Thus, the experimental group was labeled 'A (+)' and the control group of the study was labeled A (_). Apparently, the means of the reading tests of the two groups were significantly different; however, the

significance of the difference between the means had to be determined when the t value could be calculated.

5. Conclusion

There is relationship between syntactic ability and Iranian non –native speakers reading comprehension ability at high school level according to evidences we rejected the hypothesis because the strong students in syntax got good scores in reading comprehension and weak students got bad scores in reading comprehension. So we can say, there is relationship between syntactic ability and reading comprehension in non - native learners.

Appendix

Which of these sentences are true (T) and which are false (F) grammatically? Write T or F in the boxes.
1. The cars making a lot of noise pollution must be stopped by the police.
2. The grandmother was hurt by the doctor in the hospital.
3. The mother fed the child in the hospital.
4. After the girl read the newspaper, she cleaned her room.
5. Nobody can make her change her mind. she has a fixed idea.
6. The longer the sun shines the warmer the earth is.
7. The girl talked to her brother after she had ice cream.
8. There hasn't been any rain since two months.
9. The girl went to the museum before she fed the dog.
10. The tiger eat the line in the jungle.
11. The police questioned the suspects one at the time.

12. My brother learned how to drive a car
13. Some birds prefer to live near the sea, when others like to live in the mountains.
14. She knows how to use the Internet, even though she is only 7 years old.
15. I tried to finish the work, because I felt very tired.
16. It was such a strong earthquake that killed thousands of people.
17. The children played in the garden since the weather was cold.
18. Sarah should had stayed with her sister last night, but she didn't.
19. She studies all her lessons carefully in order to get good marks.
20. We should used other kinds of energy instead of coal and oil.

Reading 1

Many years ago an English lady in Africa was invited by an important local chief to be the first person to use his new bath the first one in that part of Africa.

The lady went in to the bath - house, turned on the taps and got into the nice, warm water. But when she looked up, she was frightened to see an eye watching her trough a hole. She got out, dressed and ran outside. She saw an old man and a donkey there. He was carrying a petrol tin of hot water in one hand, and one of cold watering the other, and in front of him were two funnels.

have to see which tap you turn on, madam, or I don't know whether to pour in hot or cold water.

A. Which of these sentences are true (T) and which are false (F)? Write Tor F in the boxes.
1. The English lady had never been in areal bath in that part of Africa before.
2. The water came out of the taps as usual.
3. The lady was afraid when she saw an animal in a hole in the bathroom.
4. She ran out and saw a man carrying petrol to heat the water.
5. The 0ld man was looking at the lady because he did not often see white women.
6. The bath did not have running hot and cold water unless the old man was there.

B. Answer these questions.
1. What was the English lady invited to do?
2. What did she do?
3. What gave her a fright?
4. What did she see when she went out?

C. Opposites: Put a word beginning with im, in, ir or un, or a word ending in less, in each space.
1. The English lady was not a patient woman: she was an............one.
2. She was not fair to the old man: she was...........to him.

Reading 2

B: It was very difficult to find jobs in the northeast of England, and when John lost his, he found it impossible to get a new one. He soon spent all his money, so he decide d to go down to the south of the country, where he had heard that things were better, and that it was easier to find work. The best way to go was by train, so he went to the railway station and got into a train which was going to London.

He was the only passenger in his compartment when another man burst in carrying a gun and said to him, your money, or your life!

I haven t got a penny, John answered in fright. Then way are you trembling so much? The man with the gun asked angrily. Because I thought you were the ticket - collector, and I haven t even got a ticket, answered John.

Which of these sentences are true {T} and which are false {F}? Write T or F in the boxes.
1. Johan decided to go south because he was out of work and had no money;
2. He had heard that there were more jobs to be found in southern England.
3. He bought a ticket and went by train.
4. A man who was sitting beside him in the train asked him for his money.
B. Answer to these question.
1. Why did John leave the northeast of England?
2. Why did he go south?

Reading 3

A famous writer who was visiting Japan was invited to give a lecture at a university to a large group of students. As most of

them could not understand spoken English, he had to have an amusing story which went on for rather a long time. At last he stopped to allow the interpreter to translate it into Japanese, and was very surprised when the man did this in a few seconds, after which all the students laughed loudly.

After the lecture, the writer thanked the interpreter for his good work and then said to him; now please tell me how you translated that long story of mine into such a short Japanese one. I dined t tell the story at all, the interpreter answered with a smile. I just said, the honorable lecture has just told a funny story. You will all laugh, please.

A. Which of these sentences are true (T)) and which are false (F))? Write T or F in the boxes.
  1. The famous writer spoke Japanese well.
  2. He told the students a long funny story.
  3. The interpreter took rather a long time to the entire story.
  4. The students laughed because the interpreter told them to.
B. Answer this question.
  1. What invitation did the writer in this story receive?
  2. Why did he need an interpreter?
  3. What did he do during his lecture?
  4. Why did he stop after that?
  5. What did the writer ask the interpreter after his lecture?
  6. What did the students do?
  7. What did the writer ask the interpreter after his lecture?
C. Write this story. Choose the more suitable word each time
  1. My interpreter was not (young / youthful) (he was actually over 45), but he had a (young/ youthful) face, a very black, (silk/silky) moustache and an orange (silk/silky) tie.
  2. He interpreted in a loud, (confident / confidential) voice, although he had earlier confessed to me confidently/ confidentially that he really felt very nervous.
  3. Although he had had little practice at little practice at interpreting, he was more (skilful/ skilled) at translating (imaginary/ imaginative) language, and more (sensible/ sensitive) to its sounds, that many a far more (skilful/ skilled) interpreter. I particularly liked his translation of a poem about an (imaginary/ imaginative) island called Lealoa.

References

[1] Amidon, A. & Carey, P. (1972). Why five - year - olds cannot understand *before* and *after. Journal of Verbal Learning and Verbal Behavior, 11,* 4117 - 423.

[2] Andersen, R. (1984). The one - to - one principle of interlanguage construction. *Language Learning, 34,* 77 - 95.

[3] Bernhardt, E. B. (2003). Challenges to reading research from a multilingual world. *Reading Research Quarterly, 38*, 112 - 117.

[4] Bernhardt, E. (2003b). Examining the role of syntactic proficiency in second - language reading comprehension. Presented at the National Reading Conference.

[5] Bernhardt, E. (2005). Progress and procrastination in second language reading. *Annual Review of Applied Linguistics, 25,* 133 - 150.

[6] Tunmer, W. E. & Hoover, W. A. (1992). Cognitive and linguistic factors in learning to read. In P.P. Gough, Ehri, L. C. & Treiman, R. (Eds.), *Reading Acquisition* (pp. 175 - 214. Hillsdale, NJ: Lawrence Erlbaum.

[7] Tunmer, W. E., Nesdale, A. R., & Wright, A. D. (1987). Syntactic awareness and reading acquisition. *British Journal of Developmental Psychology, 5,* 25 - 34.

[8] Turner, E. A., & Rommetveit, R. (1968). The acquisition of sentence voice and reversibility. *Child Development*, 38, 649 - 660.

[9] Ulijn, J. M. & Kempen, G. (1976). The role of the first language in second language reading comprehension. In G. Nickel (Ed.) *Proceedings of the* 4th I*nternational Congress of Applied Linguistics, Vol. 1.* Stuttgart, Hochschulverlag, 494 - 507. Cited in Alderson & Urquhart (eds.) 1984.

[10] Venezky, R. I. (1970). *The structure of English orthography*. The Hague: Mouton.

[11] Yngve, V. H. (1960). A Model and a Hypothesis for Language Structure. *Proceedings of the American Philosophical Society,* Vol. 104, no. 5. 444 - 466.

[12] Zobl, H. (1986). A functional approach to the attainability of typological targets in L2 acquisition. *Second Language Research*, 2, 16 - 32.