

Typoglycemia

The Ability to Read Transposed Letters in Word with Different Languages

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Abstract

This paper focuses on the human ability to read transposed letter words. Formally, this ability had been known as “typoglycemia”. Typoglycemia is really beneficial because it triggers our brain to be active. There are a few factors that directly affect this ability; some of them make the process of recognizing the scrambled easier while the others make it difficult. In addition, this study investigates whether typoglycemia is applicable to other languages like Malay and Spanish. Moreover, this paper also studies the interesting differences of this ability between native and non-native speakers of that particular language. Therefore, two surveys, involving diverse community members at Cañada College, were administered. It is ideal because in Cañada College, the students and lecturers are from all over the world. Overall, most of the participants managed to complete the test, yet there also a few participants that faced difficulties to read those scrambled text. Each of them has a specific reason for not being able to read the scrambled text.

The Ability to Read Transposed Letters Word

Our brain is one of the largest and the most complex organs in the human body and it has incredible abilities that we might not be aware of. For example, when you write an essay or a message that contains a lot of words, for some reasons, you might not realize that there are a few words that you had misspelled. This is because you read the whole text as they are in their original form.

In 1976, Graham Rawlinson discovered that our brain has the ability to decipher the jumbled word when the first and last letters of the word are in the right place (Davis). “Typoglycemia” is a neologism (a newly coined word or expression) given to support that discovery. Originally, the word “typoglycemia” comes from the word typographical error and “hypoglycaemia”. Hypoglycaemia is a word that usually use as medical term (Kemmer). Around September 2003, there was a text that circulated world widely via the internet.

“Aoccdrnig to a rscheearch at Cmabrigde Uinervtisy, it deosn't mttair in waht
oredr the ltteers in a wrod are, the olny iprmoetnt tihng is taht the frist and lsat
ltteer be at the rghit pclae. The rset can be a toatl mses and you can sitll raed it
wouthit porbelm. Tihs is bcuseae the huamn mnid deos not raed ervey lteter by
istlef, but the wrod as a wlohe” (Davis)

The ability of typoglycemia is related to our brain because it helps us to memorize and take actions. According to Maximilian Riesenhuber, researcher from Georgetown University Medical Center (GUMC), our brain sees the word as a picture not as a group of letters. When we are reading, the brain will interpret the scrambled word as the right word just like the one that has been memorized. Thus, we often do not discover the misspelled word when we are reading.

However, Keith Rayner, Professor of Psychology and director of Rayner Eyetracking Lab at University of California San Deigo pointed out that there is always a cost to read a jumbled word; we will take a longer time to recognize jumbled words compared to when we read the original words. People will also face the difficulties to recognize the jumbled word especially when they encounter unfamiliar words. This is because their brain cannot find a perfect match of that unfamiliar word with the word in their memory. Other than that, people with dyslexia also have the problem to read those nonsense words because it is difficult for them to read or interpret words, letter or symbols. This is because dyslexic persons will take a longer time to make the connections and more steps when they are reading (What is Dsylexia?) Yet, our brain is still able to read jumbled words even though it is not as efficient as reading the normal one. Most of the scrambled words text that have circulated in the internet right now are in English, but in this world there are hundreds of types of unique languages. Thus, how can this ability be applied to other languages that have different styles of writing, syllables and alphabets? Besides, how is it different for native and non-native speakers of the languages?

Brain, Language and Word

The brain is divided into two major parts which are left hemisphere and right hemisphere. The function of the hemispheres is not symmetrical. The right hemisphere is focus more on something artistic and it controls the matter that is related to 3D spatial acuity. However, the left hemisphere focuses more on language and it has a monolineal progression. “By learning something related to language, it actually increases the neural activity in left hemisphere” (Linguistic 201).

The organ for language is not the mouth; instead, it is our brain in Perisylvian cortex (Figure 1). There are 8 brain areas that are functioning when we read a new word. First, the

visual cortex will provide visual “cues” to produce a specific sound while auditory cortex is being associated with a function to hear the words. Next, the Broca’s area will help to control the movement of the mouth, tongue, lip and jaw to say a word. We also need Wernicke’s area because it is essential in order to understand the meaning of the word before we start to respond with the Motor cortex’s permission for voluntary motor to function for speech. The prefrontal cortex is used to plan for articulating a certain word and Pre-motor cortex responsible for physical aspects before saying words. The hippocampus plays a major role for laying down new memories for learning new words (Wesson, Brain World). Other than that, Angular Gyrus also allows us to use multi language-related information in our daily life, whether the language-related information is visual, auditory or sensory. Thus, we still can perceive the word even though it has different images, sensation, and ideas (Brain 101: Topic in Neuroscience).

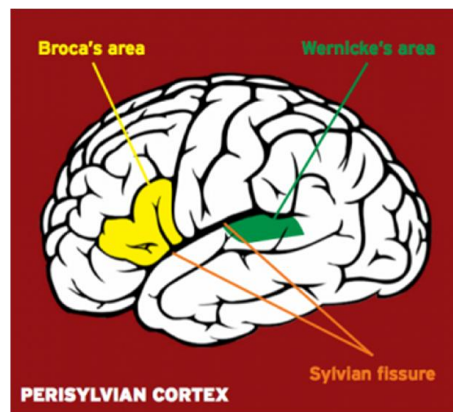


Figure 1

The brain can process language-related information in many forms; it does not matter if the words have different images, sensations or ideas. Hence, it will be very useful for us to decipher the jumbled words. Under the definition of “typoglycemia”, the scrambled words still have the same letters as the original words. Thus, it means that apparently the scrambled words just have different shapes and sensations, but they still have the same idea with the

original words (Figure 2). As mentioned by the researcher from GUMC, the brain does not see the word as a bunch of letters, but the brain sees the word as a picture. Neurons are being tuned to respond for the whole word and that is the reason why the brain can learn words quickly. “Visual dictionary” is a term that is used when the neurons remember how the word looks. Located at the left side of the visual cortex, opposite from the fusiform face area on the right side, the “visual dictionary” help us to read at a fast pace. Visual word forms only care about how the words look regardless of its nonsense sound (Georgetown University Medical Center 1).

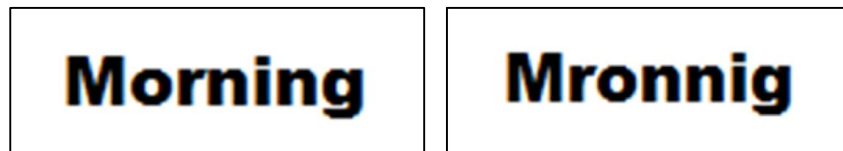


Figure 2

Factors that Affect the Ability of “Typoglycemia”

Native Speaker and Non-native Speaker of the Language

There are a few factors that affect our ability to read the scrambled words. First, native speakers and non-native speakers have a different level of word exposure in terms of their vocabulary. According to the result from an independent American-Brazilian research project, they found that “native English-speaking adults understood an average 22,000 to 32,000 vocabulary words, with 18-years-olds at 22,000 and 70-years-olds at 32,000”. They also discovered that at the ages of 16 to 50, they will learn 1 word a day. However, when it comes to the result for the non-native speakers, the average range of words that they know is between 11,000 to 22,000 since it was estimated that foreigners who living aboard learn about 2.5 words a day. Thus, when comparing the results, “foreigners living in English-

speaking countries scored at a native English speakers 8-to 14-years-old vocabulary level” (Little). This is because native speakers started to learn words since they are young because that particular language is their primary language. However, the non-native speaker will just start to learn that language at certain point of age as their secondary language. The native speakers will use that particular language to communicate with the people around them everyday, so they will learn new words indirectly and become more familiar with that language. This is really beneficial for them. Unfortunately, for non-native speakers their vocabulary for that particular language is restricted because they only know words that they learn in school and rarely practice. As time passes, the non-native speaker can also have many new words in their memory visually, but compared to the native speakers who frequently use that language, they might be not good as the native speakers. Thus, the native speaker will have a higher chance to recognize jumbled words compared to the non-native speakers.

Length of Words

Next, the length of a word also plays a major role that affects our brain during words recognition. There was research before and since 1980 that shows “high-frequency words and short words are easier for readers to recognize and comprehend than the low-frequency or longer counterpart” (Spyridakis, Chisnell) For example, below are 5 letters word and 9 letter word which had been scrambled while maintaining the first and last letters (Refer Figure 3).



Figure 3

Which word do you think is easier to be recognized? The original words above are “Catch” and “Afternoon.” Other than that, according to the research by Klinton Bicknell and Roger Levy from the University of San Deigo, the eye movement in reading is affected by the length of words. They are caused by the visual acuity limitation on word recognition; visual acuity limitation is described as the sharpness of vision where it has the ability to perceive small details (Bicknell, Levy, 1). Thus, the longer the words that we need to recognize, the more time it will take to gather all the small information that has been scattered in order to decipher that nonsense word. Nevertheless, there are still people who can recognize a long word because they have a good word recognition skill. From a study, the researcher found that the young reader takes longer time to recognize a longer word, but for college student, there was no a significant difference in processing time for longer or shorter words. This is because the college student recognized the word as holistic units (Palumbo).

The Arrangement of Letters

The arrangement of the scrambled middle letters also determines the easiness of reading the paragraph that is full of jumbled words. There are two types of letter arrangements; the adjacent letters are side by side and adjacent letters are separated. It is easier to read the jumbled word that has the adjacent letters side by side. The claim has been supported by a statement in a journal. “The transpositions of adjacent letters are easier to read than more distance transpositions” (McCusker et al.). This is because when the adjacent letters are stuck together, it does not change the word so much. Thus, it really helps us to recognize that word faster since there is still similarity between the whole shape of the original word and the whole shape of the scrambled word. This somehow manipulates our eyes and mind. It results from the fact that when there are adjacent letters, the position of the exterior letter is less confused because the adjacent letter will “mask” the exterior letters. Both of the properties actually emerge naturally from a neural network model in which letters are

identified at a different position in an artificial retina (Shillcock et al.). The example for transposition of adjacent letters is “porbelm” for the word “problem.” On the other hand, if the middle letters have been totally scrambled, then we might spend more time to guess what word it is. The example of distance transposition of middle letters of a word is “Pborlem”. This is because while maintaining the first and last letter, the word that does not have adjacent letter stuck together will produce a different shape of word compared to its original shape. Our ‘visual dictionary’ contains a lot of words that have the same first and last letters for example “printer” and “pointer”. Both of the words start with the same letter and also end it with the same letter. Therefore, our brain will need a longer time to guess which word that exactly matches. Next, it is also more difficult to read a separated adjacent letters of a scrambled word because when we read the word, it splits into half. This is because the information at the retina is divided between the two hemispheres of the brain (Shillcock et al.).

Function Words

We can also easily recognize a nonsense word if we have function words that will help us to guess what might come after that. In English Grammar, a function word is a “word that expresses a grammatical or structural relationship with other words in a sentence” (Nordquist). We will use those function words to guess the word based on their context. This is one of the important strategies in the absence of dictionaries or human assistance. “It entails guessing the meaning of the target word based on the interpretation of its immediate context with or without reference to knowledge of the world (Çetinavcı, Haastrup). Function words are not just restricted to words that cannot be jumbled (a word that has 1 to 3 letters only) like “a”, “the”, “for”, “are”, and “to”. This is because function words can also be the specific term that is usually being used in certain context. For instance, when we find a word like doctor, then our brain will be stimulated to expect words that are related to doctors like

disease, medicine, and hospital. Context plays an important role to understand a speech in noise. Thus, it is the same when we are reading written texts that have been scrambled (Miller et al.). Thus, it will shorten the time for our brain to search for a right word, since the related words have been sorted out.

Objective

The purpose of my research paper is to investigate how “typoglycemia” is applicable to other languages instead for English only; the results from Survey 1 will be used as a reference. Next, it is also to see the differences of this ability for native and non-native speakers by using the results from Survey 2.

Materials and Procedure

Over a period of seven days, I conducted my survey on 70 participants. There are two kinds of survey that had been administered. For Survey 1, it was administered by using the text with 3 types of languages (English, Malay, Spanish) that had been scrambled. Thus, I choose to test 10 persons for each type of language with various range of age (See appendix A). I also choose 10 native speakers for English and Spanish and the other 10 people as non-native speakers of English and Spanish for Survey 2 (See appendix B). Then, I supplied everyone with a typed paragraph that I made up. The original text was taken from the internet. Most of the words were randomly scrambled but the first and the last letter are still maintained in the original position. The participants need to read the paragraph within 1 minute. Finally, I gathered the results from each subject, and then charted the results. The scrambled texts are in Figure 4(a), Figure 4(b), and Figure 4(c).

Liufecr weaks up in fonrt of his TV and sitnitg dwon on his corfomtbale caihr. Tehre is a ntoe and tdoay's npepwaesr bsiedes him. "Dtcoor, you fintaed. Plesae clal me wehn you are felneig bteter". Ncie guy, the apernptice, had alywas recsepted the dtcoor snice his ararivl to the lab. The dtcoor taeks a gimlpse at the coclk and wehn he deos the clcok stirke 12.

"Hlep... Hlep...", Sudendly he haerd a msyteirous vioce. "Is aynnoe tehre?" he muettred.

Figure 4(a)

Lcuifer trajgea drpidaaa tirdunya dan dia berdaa di hpaadan TV smabil duudk di aats kuresi ynag slesea. Tredaapt cattaan dan suart khbaar hrai ini di sebaehlyna . " Dtokor, aawk peangsn. Slia hbuguni syaa apbilaa aawk brseaa lbieh biak ". Dia soeanrg permtais ynag sagnat bgaus kearna dia seintsaa mgrohnaemti dtookr-dotokr ynag lian saejk praetma klai tbia ke mkmaal. Lcfeur meliaht pdaa jam dan pdaa watku ynag smaa jam meaununjkn jam 12.

"Tlnoog ... Tolnog ... ". Tbia-tbia dia trednegar sbeuah saura ynag msiteri. "Sipaa di snaa?" Dia megnugumam.

Figure 4(b)

Lfeciur se lveanta dletnae de su teliveosr y se seitna en su códmoe slila. Hay una ntoa y el peridicóo de hoy aedáms de él. La ntoa dceía, " Dcotor, uestd se dseaymó. Por fvaor lálmmae caudno te seitnas mojer". Beun chcio, el arpneidz, seimrpe hbaía rsetpeado al dcotor dedse su lelgdaa al laobrtaoiro. El dcotor ehca un vsiatzo al rleoj y caudno él lo hcae el rleoj mraca las 12.

"Aydua...aydua...", djio la voz. "Hay agliuen ahí?" él mrumruó.

Figure 4(c)

Result

Since there are only a few of the participants that did not manage to read the scrambled text in the given time, the result of participants that finished the reading in a minute will be divided into two types:

Survey	Finished in 1 minute		Not Finished in 1 minute
	Less than 30 seconds	More than 30 seconds	
1			
English	8	1	1
Malay	6	4	0
Spanish	5	2	3
Total	19	7	4
2	Native speakers	Native speakers	
English	10	0	0
Spanish	8	2	0
Total	18	2	0
	Non-native speakers	Non-native speakers	
English	8	2	0
Spanish	6	2	2
Total	14	4	2

Discussion

Based on the result from the surveys that had been conducted, it can be seen that most of the people can read the scrambled text without a problem. The participants stated that when they saw the text, they did not realize that there are a lot of misspelled words in there. Thus, they just read it just as they read the normal text.

Other than that, when they encountered a few difficult words, they used a few techniques to recognize those word. First, they guessed the word by the context of the whole text. Next, there are also some people that tried to find the similarity between the words that they encounter with the words that they already knew. This is caused by the “Word Superiority Effect” where people are often better at guessing what word they saw compared to decipher it by the individual letters in that word (Reicher).

For the second survey, the English native speakers found that it is easy to read the jumbled text since they can right away read the text without a problem. Most of them have used English for more than 15 years. Thus, it really helps them to read it. Yet, there are 2 persons who are the native speaker for Spanish that took more than 30 seconds to read the text. After the test, they said it is their first time to read that kind of text. It seems that the jumbled texts in other languages are not world widely known. They said that feel incredulous when they first saw that jumbled text. Therefore, this eventually affected the time for them to read that text because in my point of view it is easier to read something that we can expect.

However, there are also a few participants that had a problem to read the scrambled text. One of the participants said that she cannot read text because the letters are too small for her. People that are farsighted will have the difficulties to read something without some aids. Thus, I realized that the size of letter also affects the ability to read transposed letters word. Next, the most difficult word to guess by the participants is “apprentice” (also in Spanish and

Malay). This is because “apprentice” can be assumed as low frequency word since it is not usually used in our daily life. “The frequency effect means that a word is more accessible because we see or hear it more often and because we use it more often” (Schmied 67). Other than that, 2 out of 10 non-native speakers for Spanish did not manage to complete the task because they are beginners for that language. They started to learn Spanish last year, so it is difficult for them to decipher the text. Based on Spanish Proficiency Exercises of University of Texas at Austin, the first three tasks for beginning level are identifying basic objects, counting to ten and identifying basic colour. This means that the vocabulary of a person who just starts to learn a language is very restricted. Thus, it is really difficult for them to recognize the words in the text that had been provided to them.

Limitation of the Study

Even though this research was carefully prepared, I know that there are still possibilities for its limitations and shortcomings. First of all, the research was conducted in Cañada College. The participants that had involved in this survey are not enough to represent that the majority population of the human have the ability to read the jumbled text. This is because the population of the experimental group is too small.

Conclusion

The result of my surveys have supported my argument claiming that our brain can translate the scrambled words it sees as the original words and that is applicable to other languages such as Malay and Spanish. It is easier for the native speakers of English and Spanish to read the scrambled text compared to the non-native speakers. This is because the native speakers of that particular language are exposed to a wider range of vocabulary compared to the non-native speaker of that language. Thus, there will be more words that they are familiar with.

Appendix A

English

Survey 1

Date: 11/10 Time: 3:27 P.M

Gender: ☐ Male ☒ Female

Range of Age: ☒ 13-19
☐ 20-39
☐ 40-65

Please read the sentence below within 1 minute.

Liufecr weaks up in fornt of his TV and sitnitg dwon on his corfomtbae caihr. Tehre is a ntoe and tdoay's npepwaesr bsiedes him. ~~The ntoe siad,~~ "Dtcoor, you fintaed. Plesae clal me wehn you are felneig bteter". Ncie guy, the apernptice, had alywas respetced the dtcoor snice his ararivl to the lab. The dtcoor taeks a gimlpse at the cockl and wehn he deos the clcok stirke 12.

"Hlep... Hlep...", siad the vicoe. "Is aynnoe tehre?" he muettred.

Finished (25s) ☒
 Not finished ☐

Do you have any difficulties to read this paragraph?
No.

How do you feel after doing this activity?
I feel like I am clever

What kind of method did you used to read this paragraph?
usual method like I read a normal paragraph.

Circle the word(s) that you could not recognize.

Thank you for your cooperation

Spanish

Survey 1

Date: 11/16 Time: 4pmGender: ☒ Male ☐ FemaleRange of Age: ☐ 13-19☒ 20-39☐ 40-65

Please read the sentence below within 1 minute.

Lfeciur se lveanta dletnae de su teliveosr y se seitna en su códmoe slila. Hay una ntoa y el peridicóo de hoy aedáms de él. La ntoa dceía, " Dcotor, uestd se dseaymó. Por fvaor lálmmae caudno te seitnas mojer". Beun chcio, el arpneidz seimrpe hbaía rsetpeado al dcotor dedse su lelgdaa al laobrtaoíro. El dcotor ehca un vsiatzo al rleoj y caudno él lo hcae el rleoj mraca las 12.

"Aydua...aydua...", djio la voz. "Hay agliuen ahí?" él mrumruó.

Finished (29s) ☒Not finished ☐

Do you have any difficulties to read this paragraph?

Yes, a little.

How do you feel after doing this activity?

Amazed because I can actually read this kind of word.

What kind of method did you used to read this paragraph?

I try to guess the word that I don't know based on the context of the entire sentence.

Circle the word(s) that you could not recognize.

Thank you for your cooperation

Bahasa Melayu

Survey 1

Date: 11/13/15 Time: 2:30pmGender: ☐ Male ☒ FemaleRange of Age: ☒ 13-19☐ 20-39☐ 40-65

Please read the sentence below within 1 minute.

Lcuifer trajgea drpidaaa tirdunya dan dia berdaa di hpaadan TV smabil duudk di aats kuresi ynag slesea. Tredaapt cattaan dan suart khbaar hrai ini di sebaehlyna . " Dtokor, aawk peangsn. Slia hbuguni syaa apbilaa aawk brseaa lbieh biak ". Dia soeanrg perntais ynag sagnat bgaus kearna dia seintsaa mgrohnaemti dtokor-dotokr ynag lian saejk praetma klai bia ke mkmaal. Lcfeieur meliaht pdaa jam dan pdaa watku ynag smaa jam meaununjkn jam 12. kali ??

"Tlnoog ... Tolnog ...," ktaa sraua itu. "Sipaa di snaa?" Dia megngumam.

Finished (18s) ☒Not finished ☐

Do you have any difficulties to read this paragraph?

No,

How do you feel after doing this activity?

I don't feel anything. It is the same as before I did the test.

What kind of method did you used to read this paragraph?

I just read as usual and at first I did not realize that they were all misspelled.

Circle the word(s) that you could not recognize.

Thank you for your cooperation

Appendix B

English
Survey 2

Date: 11/13/15 Time: 2:05 PM

Gender: ☐ Male ☒ Female

Range of Age: ☐ 13-19 ☒ 20-39 ☐ 40-65

☒ Native speakers ☐ Non-native speakers

Please read the sentence below within 1 minute.

Liufecr weaks up in fonrt of his TV and sitnig dwon on his corfontbale caihr. (Tehre) is a ntoe and tdoay's
npepwaesr bsiedes him. The ntee siad, "Dtcoor, you fintaed. Plesae clal me wehn you are felneig bteter". Ncie
guy, the (apernptice) had alywas respetced the dtcoor snice his ararivl to the lab. The dtcoor taeks a gimlpse at
the cockl and wehn he deos the clcok stirke 12.

"Hlep... Hlep...", siad the vioce. "Is aynnoe tehre?" he muettred.

Finished (18 SEC) ☐

Not finished ☐

Do you have any difficulties to read this paragraph?
NO

How do you feel after doing this activity?
REALIZED IT WAS STILL EASY TO READ EVEN IF WORDS / LETTERS SWITCHED AROUND

What kind of method did you used to read this paragraph?
LOOK FOR SIMILARITIES IN THE SPELLING OF WORDS

Circle the word(s) that you could not recognize.

Thank you for your cooperation

English

Survey 2

Date: _____ Time: _____

Gender: ☐ Male ☒ Female

Range of Age: ☒ 13-19 ☐ 20-39 ☐ 40-65

☐ Native speakers ☒ Non-native speakers

Please read the sentence below within 1 minute.

Liufecr weaks up in fonrt of his TV and sitnigt dwon on his corfomtbaile caihr. Tehre is a ntoe and tdoay's npepwaesr bsiedes him. ~~The ntee siad,~~ "Dtcoor, you fintaed. Plesae clal me wehn you are felneig bteter". Ncie guy, the apernptice, had alywas respetced the dtcoor snice his ararivl to the lab. The dtcoor taeks a gimlpse at the cockl and wehn he deos the clcok stirke 12.

"Hlep... Hlep...", siad the vioce. "Is aynnoe tehre?" he muettred.

Finished (35s) ☒

Not finished ☐

Do you have any difficulties to read this paragraph?

No

How do you feel after doing this activity?

Normal, it was interesting

What kind of method did you used to read this paragraph?

I just read and the words formed in my head

Circle the word(s) that you could not recognize.

Thank you for your cooperation

Spanish

Survey 2

Date: 11/13/15 Time: 1:46

Gender: ☒ Male ☐ Female

Range of Age: ☐ 13-19 ☒ 20-39 ☐ 40-65
☒ Native speakers ☐ Non-native speakers

Please read the sentence below within 1 minute.

Lfeciur se lveanta dletnae de su teliveosr y se seitna en su códmoa slila. Hay una ntoa y el peridicóo de hoy aedáms de él. La ntoa dceía, " Dcotor, uestd se dseaymó. Por fvaor lálmmae caudno te seitnas mojer". Beun chcio, el arpneidz, seimrpe hbaia rsetpeado al dcotor dedse su lelgdaa al laobrtairo. El dcotor ehca un vsiatzo al rleoj y caudno él lo hcae el rleoj mraca las 12.

"Aydua...aydua...", djió la voz. "Hay agliuen ahí?" él mrumruó.

Finished (255) ☐

Not finished ☐

Do you have any difficulties to read this paragraph?

Yes a little bit. Had a little difficulty figuring some words out

How do you feel after doing this activity?

Neutral

What kind of method did you used to read this paragraph?

Word recognition and figuring out words by context. Skipped words I didn't know

Circle the word(s) that you could not recognize.

Thank you for your cooperation

Spanish

Survey 2

Date: 11-17-2015 Time: 12:07 PM

Gender: ☐ Male ☐ Female

Range of Age: ☐ 13-19 ☐ Native speakers
☐ 20-39 ☒ Non-native speakers
☐ 40-65

Please read the sentence below within 1 minute.

Lfeciur se lveanta dletnae de su teliveosr y se seitna en su códmoe slila. Hay una ntoa y el peridicóo de hoy aedáms de él. La ntoa dceia, " Dcotor, uestd se dseaymó. Por fvaor lálmmae caudno te seitnas mojer". Beun chcio el arpneidz, seimrpe hbaia rsetpeado al dcotor dedse su lelghaa al laobrtaoiro. El dcotor ehca un vsiatzo al rleoj y caudno él lo hcae el rleoj mraca las 12.

"Aydua...aydua..." djio la voz. "Hay agliuen ahí?" él mrumruó.

Finished (49 Second) ☒

Not finished ☐

Do you have any difficulties to read this paragraph?

NO

How do you feel after doing this activity?

It + ~~feels~~ was a challenge for me.

What kind of method did you used to read this paragraph?

To guess!

Circle the word(s) that you could not recognize.

L

Thank you for your cooperation

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