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## Teaching Listening through Comprehensible input: A Neuroscience Perspective

### Enseñanza de la comprensión auditiva mediante input comprensible: una perspectiva desde las Neurociencias

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## Teaching Listening through comprehensible input: A Neuroscience Perspective

### Enseñanza de la comprensión auditiva a través del input comprensible: una perspectiva desde la Neurociencia

#### Abstract

This study used a mixed- method approach to discover how comprehensible input enhances the development of listening skills in Elementary students. To gather data, a survey and audiovisual materials, which included the comprehensible input approach, were used. Results elucidated that the majority of participants showed a positive attitude towards the comprehensible input approach. This state of mind helped them perform exceptionally during the application of the activities with audiovisual materials. Collectively, the results appear consistent with satisfactory comprehension. As a conclusion, students had an optimum performance in the video activities when using comprehensible input, which makes us suggest that comprehensible input materials enhance the development of listening skills in students.

**Keywords:** comprehensible input, listening skills, videos.

#### Resumen

Este estudio se basó en un enfoque de método mixto para descubrir cómo el discurso comprensible (comprehensible input) mejora el desarrollo de las habilidades auditivas en los estudiantes de nivel elemental de inglés. Para la recolección de datos, se utilizaron materiales audiovisuales que incluyeron el enfoque de discurso comprensible y posteriormente los estudiantes respondieron una encuesta. Los resultados mostraron que la mayoría de los participantes tuvo una actitud positiva hacia el enfoque de discurso comprensible, y este estado de ánimo les ayudó a desempeñarse de manera excepcional durante la aplicación de las actividades con materiales audiovisuales. En general, los resultados demostraron una comprensión satisfactoria de parte de los estudiantes. Como conclusión, los participantes tuvieron un desempeño óptimo en las actividades de video al utilizar discurso comprensible, lo que sugiere que los materiales con este tipo de discurso mejoran el desarrollo de las habilidades auditivas en los estudiantes.

**Palabras clave:** discurso comprensible, habilidades auditivas, videos.

#### Introduction

This research focused on describing the processes to teach English as a Foreign Language and its relationship with one of some principles of neurosciences applied to education (Garrido, 2013). Specifically, it aimed to discover how comprehensible input, input that is rich in language so that it contributes to the message and the flow of the text (Krashen & Mason, 2020), impacted in the development of listening skills in Elementary students. Specific objectives were to identify students' opinions about comprehensible input in listening activities. The objectives are related with the researchers' experiences and the difficulties in improving the listening skill.

### **Problematic situation**

During the Coronavirus pandemic, there was the necessity to employ educational platforms and the internet to continue the learning and teaching process. Specifically, students from an elementary group of a public language school situated in the state of Veracruz needed to improve their listening skills. Therefore, it was determinant that students had enough exposure to authentic material. However, there was the necessity to make sure that the listening material was comprehensible and compelling. That is to say, the language included in the recordings allows learners to understand and acquire new language aspects (Krashen & Mason, 2020). In this way, their previous experiences on the subject matter of the listening passages could reinforce their perception of another language. Those experiences can be activated by employing neurosciences principles through aspects of the comprehensible input hypothesis.

### **Antecedents**

To the best of our knowledge, there are not enough recent research done in Mexico about this topic, except in Japan. In that country, 41 right-handed Japanese learners (33 men, 8 women) participated in a study about brain activity measuring when learning English. It was intended to explore neural mechanisms about the way prior knowledge gained from pre-listening transcript reading helped them to comprehend fast-rate speech in a second language.

Results revealed that prior knowledge was used to decode sensory input. That brain activity is considered as a contributor to language learning (Kajiura et al., 2021).

Furthermore, another Japanese university implemented a research project devoted to the development of listening skills through learners' interaction. Specifically, to examine how fifteen active learning group discussion activities helped 25 L1 Japanese students enrolled in a compulsory academic listening course to develop their listening comprehension skills. It was observed that there was a significant increase of the listening scores from a pre- to a post-listening test result (Elmetaher, 2021).

Both studies revealed that prior knowledge and learners' interaction are two paramount elements that should be present in the development of listening skills. On one hand, prior knowledge helps brain's learners to process the information they listen to by starting the three-part internal memory building processes of encoding, storage, and retrieval (Royal Society, 2011; Vorhauser-Smith, 2011). That prior knowledge is closely related to three neurosciences' principles embedded in education. The first one is the search for meaning occurs through patterns. For learning a Foreign Language (FL), the brain tries to discern and understand patterns as they occur and, at the same time, formulates their own understanding patterns about how the FL works (Garrido, 2013).

A second neuroscience principle says that learning is a development process. It means that neurons strengthen neuronal connections which are responsible for translating person's experience into learning. That experience gives basic learning structures that facilitates FL learning. The third one, emotions are fundamental for patterns development. Learning is influenced and organized by emotions, which implies that an appropriate emotional climate is essential for being willing to learn a FL (Garrido, 2013).

On the other hand, learners' interactions provide an opportunity to implement listening material that follows comprehensible input principles (Krashen & Mason, 2020). To begin with,

the input to be comprehensible needs to contain linguistic elements that allows the message to flow. It means that it may include unknown vocabulary and grammar rules, but their emergence does not impede the learner to comprehend the message. Furthermore, the input is compelling for learners so that at some point they may forget the listening passage is in a FL. Finally, the language included in the listening passage does not threaten learners. In that way, they do not experience negative emotions that can interfere their listening skills process (Wenquan 2010).

### **Objective**

- To analyze how comprehensible input enhances the development of listening skills in Elementary students.

### **Specific Objectives**

- To identify opinions about comprehensible input in listening activities.
- To describe students 'evaluation of comprehensible input listening activities

### **Materials and method**

This research adopted a mixed-method design (Wisdom & Creswell, 2013). The main purpose of this research was to discover how comprehensible input enhances the development of the listening skills in Elementary students. Furthermore, this research used audiovisual materials which included the comprehensible input approach and a section to evaluate the students' opinions about comprehensible input activities. Each video had a different goal: the first one focused on the future tense *Will*. The second one described objects, and the third one narrated a meal. Each video contained abundant vocabulary, one of the main characteristics in the hypothesis of optimal input (Krashen 2020).

### **Participants**

The participants were 25 students who were studying English language at the Language School of the Universidad Veracruzana. Their level of English was Elementary level that was

equivalent to A2 according to the Standards of The Common European Framework of Reference for Languages. They received their English classes in online mode. Their ages were between 18 and 28 years old. They were used to working on online platforms, digital media, and the internet. The participants were students who allowed us to use their data. In this way, answers by learners who did not permit to use their data in the study were not considered in this research.

### **Techniques and instruments**

To evaluate students' reactions, opinions, and assessments, three surveys were built and hosted in Google forms. Each survey was designed to collect data about opinions and reactions. It consisted in ten questions: three questions to evaluate speech opinion, three for vocabulary comprehension, three about syntax comprehension, and one question to receive comments and feedback from participants. All the data were organized in charts, lists of words, and opinions.

### **Procedure**

Due to the coronavirus pandemic, professors used educational platforms such as Google Classroom and ZOOM. Then, participants were informed that their names would not be used in the research. Furthermore, Google survey was used for administering the surveys to students which collected the information of each video activity. Each activity was named movie talk (Piantaggini, 2019). These activities promoted the use of receptive senses to acquire knowledge to trigger cognitive processes such as memory and attention. These cognitive processes were useful to evaluate the general comprehension of video content (Caballero, 2018). At the end of each video, the participants answered a survey.

### **Results and discussion**

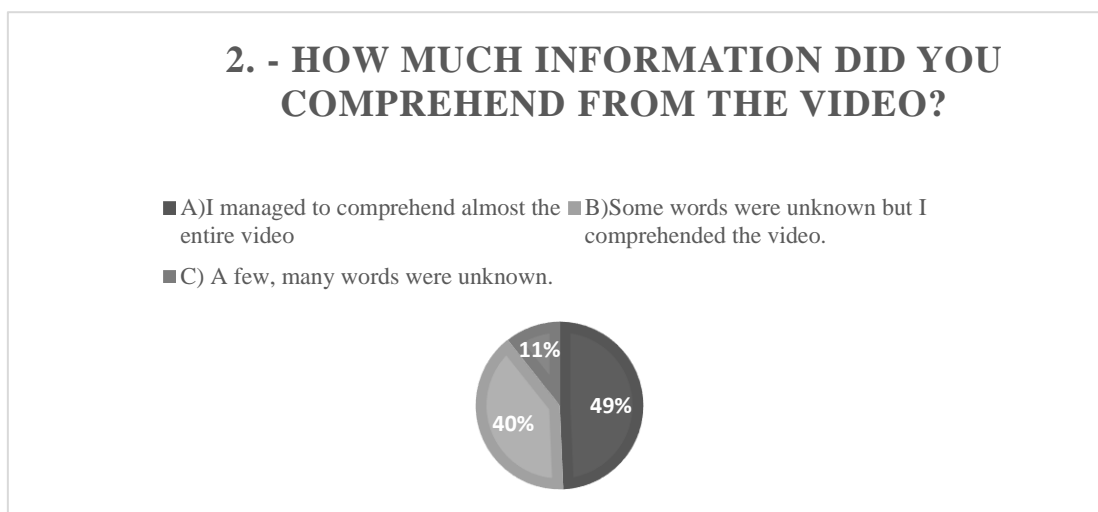
The results were organized into five categories: The amount of comprehensible input understood, Students' assessment of comprehensible input activities, the impact of images on comprehensible input activities, Students' opinions about comprehensible input, and Students' reactions towards comprehensible input activities. All the following data were organized in charts, lists of words, and opinions. The number of participants was twenty-five students who agreed with the privacy policy. The total of answers per question was twenty-five in each video excluding open questions.

### ***Amount of comprehensible input understood***

The following chart contains information about how much information students comprehended from the video and their success in mentioning at least three new words that they understood after watching the video.

**Figure 1**

*How much information did you comprehend from the video?*



*Source: Researchers' own design (2022)*

The graph shows how much information participants comprehended. A relative majority (49%) answered that they comprehended almost all the content of the videos, specifically grammar items and new words. 40% of the students comprehended grammar items even though some words and sounds were unknown. These results indicate that comprehension takes place, allowing participants to understand the descriptions and narrations.

When the students were asked to mention at least three new words they had understood from the video, some of them answered the following:

**Table 1**

*Students' Understanding words*

"French fries", "cheeseburger", "pour" (Jose Q5).
"Toothpaste", "nail clipper" "dental floss" (Elena Q5)
"Outside", "shark" and "weather" (David Q5)
"Place" "pool" and "story" (Andrea Q5)
"Look", "swimming pool", "scare", (Rene Q5)

*Source: researchers' own design (2022)*

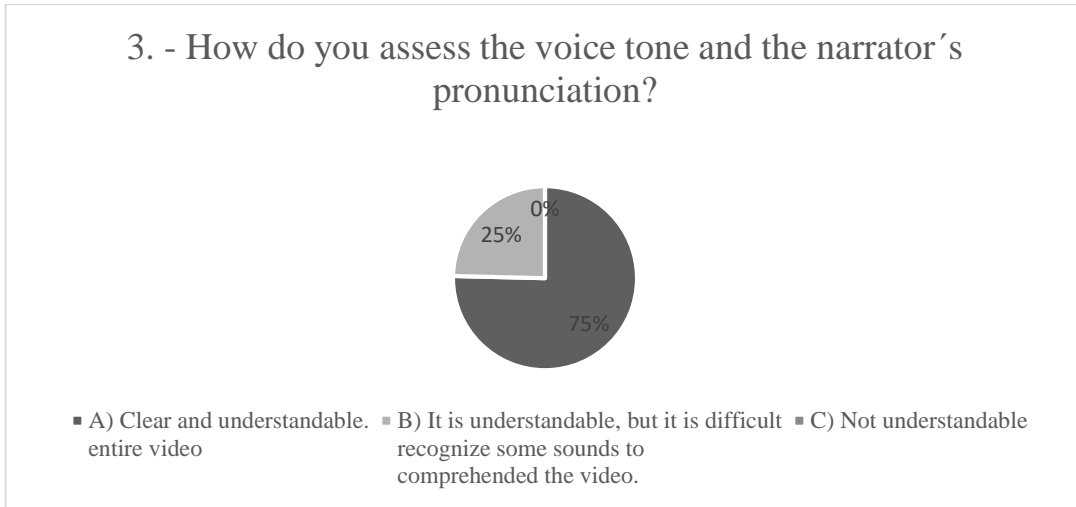
### ***Student's assessment of Comprehensible input***

The following chart describes how students assess the voice of the narrator on comprehensible input activities. This question is crucial because pronunciation and articulation play a significant role during the application of comprehensible input audio material. A good professor's voice, volume, and natural rhythm facilitates students' comprehension.

**Figure 2**

*How do you assess the voice tone and narrator's pronunciation?*





Source: Researchers' own design (2022)

The majority of students (75%) perceives that the narration was acceptable and clear that allowed them to understand most of the activity. Thus, the comprehension was satisfactory. 25% of the participants said that although the pronunciation and rhythm of sentences were comprehensible, some words and sounds were unrecognizable. These results coincide with the patterns construction neuroscience principle since the input seemed to be comprehensible for participants. It can be assumed that despite the presence of unknown vocabulary, students' current level of language helped them to understand new words and comprehend the video.

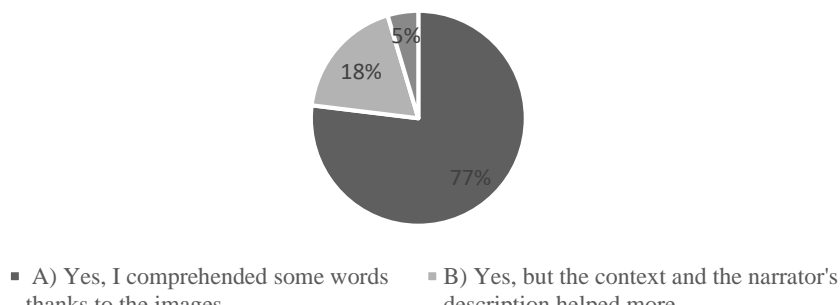
### *The impact of images on comprehensible input activities*

The following chart details how images helped students to comprehend new words.

Figure 3

*Did the images help you to comprehend new words?*

4. - Did the images help you to comprehend new words?



*Source: Researchers' own design (2022)*

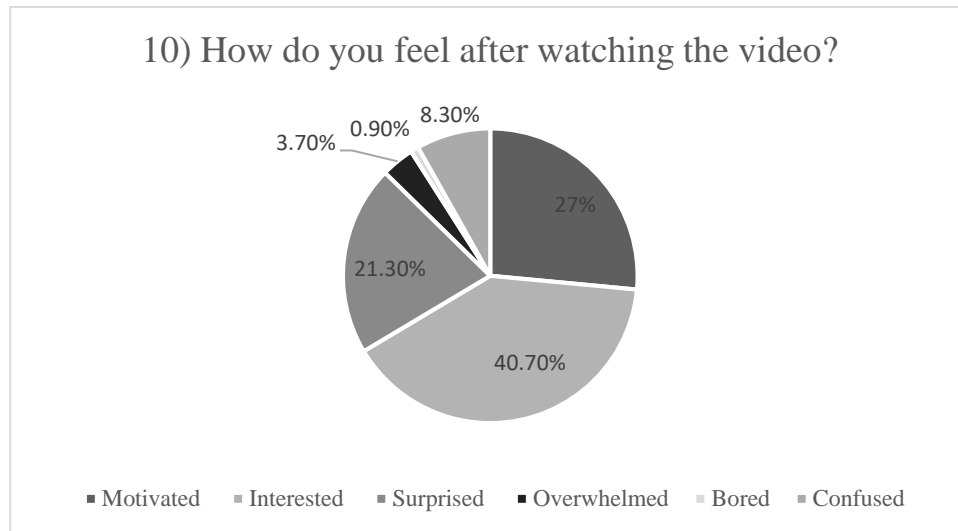
The chart shows that the majority of participants (77%) answered that images were helpful to comprehend new words. The stimulation of multiple senses increased the delivery rate of information. In this case, pictures helped students comprehend new words because they might use the visual cortex and the auditory cortex. Only a few answers indicated that images are good, but the context favors the understanding of new words (18%). This result confirms that descriptions and narrations could improve the understanding of audiovisual materials.

#### ***Students' reactions towards comprehensible input***

The following chart gives information about the participants' reactions to comprehensible input activities.

#### **Figure 4**

*How do you feel after watching the video?*



*Source: Researchers' own design (2022)*

Statistics show the majority of participants seemed to be interested in this kind of material (40.7%). A good number of students (27%) also felt motivated when doing the activities. Only 21.3% of participants got surprised at the material. Finally, only a small number of students consider the activities overwhelming (3.7%), boring (.9%), or confusing (8.3%). The previous results showed that, in general, students had a positive attitude towards comprehensible input material.

#### ***Student's opinion about comprehensible input***

Finally, the last category represents students' opinions on comprehensible input activities. Participants wrote a free comment about each video activity. These are some of their comments:

**Table 2**

*Students opinions*

"Yes, I like the activity. It's interesting and educational."(Luis, Q11)
"His way of expressing what he used things was quite good for and how to use them" (Yared Q11)
"I found the video very well exemplified and with a good explanation". "I like it". (Maria, Q11)
"The video was very good, just that it was difficult for me to understand because sometimes I do not understand some words despite the good pronunciation" (Itzel, Q11)

*Source: Researchers' own design (2022)*

The previous quotes illustrate that the majority of participants considered comprehensible input activities as a reliable and positive approach. These previous statements match absolutely with the fact that the brain and cognitive processes should be free of negative emotions to perform good results in the acquisition of a second language.

### **Conclusion**

Neurosciences principles applied to education keep a relationship with the comprehensible input hypothesis. Specifically, neurosciences principles such as the use of patterns when searching for meaning, learning as a development process, and emotions as fundamentals for patterns development are hallmarks for allowing learners to be able to comprehend listening input. In conclusion, it would appear that comprehensible input could be a great approach to increase the understanding of the English language. As the results shown, students manifest that comprehensible input materials enhance the development of their listening skills. Professors should take into account cognitive processes and material that incite the listening skills of students. Future research should consider the potential benefits of the neurosciences approach and programs. For example, the association between education, mind, science and psychology.

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