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SPEECH PERCEPTION ON STUDENTS ACTIVITY AT STKIP AL MAKSUM LANGKAT (A CASE STUDY OF PSYCHOLINGUISTICS)

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Abstrak:

This paper investigates the speech perception on students activity especially for the third-semester students at STKIP Al Maksum Langkat. It focuses to find Speech perception on students activity (especially in third semester students) at STKIP Al Maksum and to explain the reason why it runs that way. The research design used is case study, especially the observal case study in which the instrument of the data is the speech perception test. It was found that: a) a phenomenon called as Coarticulation that also deals with Voice Onset Time is occured in experiment-1, b)some words cannot be perceived well because they are categorized as rare word, c) The hearer did not made mistake in hearing some words becuse of Personal Values or Interests, d) some mistakes in reading words and sentences because the room had not enough light that causing the reading activities hard be carried out, e) some words are correct (in reading) because the students used Visual Recognition Threshold, f) The performance will be improved if the lights is turned back on and no noisy sound that interrupt the speech perception process.

penelitinan ini menginvestigasi persepsi ujaran pada aktivitas mahasiswa khususnya untuk mahasiswa semester ketiga STKIP Al Maksum Langkat. Fokus pada penelitian ini adalah untuk mengetahui persepsi ujaran, khususnya pada mahasiswa semester ketiga STKIP Al Maksum dan untuk menjelaskan alasan mengapa hal tersebut terjadi. Dengan menggunakan disain penelitian Studi Kasus, khususnya studi kasus observal dimana instrument datanya adalah tes persepsi ujaran. Hasilpenelitian menemukan bahwa: a).sebuah fenomena yang disebuat sebagai koartikulasi yang berkaitan dengan *Voice Onset Time (VOT)* muncul pada eksperimen-1, b).beberapa kata tidak dapat dipahami dengan baik karena termasuk dalam kategori kata sulit/langka, c). Pendengar tidak salah dalam mendengarkan beberapa kata karena *Personal Values* atau *Interests*, d). beberapa kesalahan dalam membaca kata-kata dan kalimat-kalimat karena ruangan kurang terang yang membuat aktivitas membaca sulit dilakukan, e). beberapa kata benar dibaca karena mahasiswa menggunakan *Visual Recognition Threshold*, f) performa dapat ditingkatkan apabila lampu kembali dinyalakan dan tidak ada suara bising yang dapat menginterupsi proses persepsi ujaran.

Kata Kunci:

Speech_Perception; Psycholinguistics; Students_activity

Introduction

As a human being, communication and interaction among people are very crucial. Communication and interaction in social relationship can be built when the intention meaning said by the speaker is understood by the listener. Therefore, the spoken language in social interaction is vital to establish a good social relationship. If the listener do not received the intention meaning spoken by the speaker, the communication and the interaction toward them will be interrupted that then may cause some missunderstandings.

Many disciplines have studied this spoken language since it plays an important role in social relationship. It seems that spoken language is common things which no need to be noticed. But in fact, many people are in quarrel just because the listener does not hear words uttered by the speaker clearly. This show how complex the spoken language is.

Understanding speech in spoken language is getting complex when both the speaker and the listener are talking in a language which is not their mother tongue. A non-native English listener, for instance, must have known many vocabularies in order to understand

the English words uttered by the speaker and get the information perfectly. Sometimes, the communication does not run smoothly as what both speaker and listener wish. This is what we really need to observe. This is what speech perception is mainly discussed.

The condition of speech perception which sometimes does not run smoothly is also happened in English class at STKIP Al Maksum Langkat. Knowing that spoken language is more complex than what people think it is, it is true that investigations and researchs must be conducted to overcome some spectacles in running a smooth communication. Some experiments are needed to explore the speech perception towards both speaker and listener. That is why this research entitled "Speech Perception On Students Activity At Stkip Al Maksum Langkat (A Case Study Of Psycholinguistics)" needs to be conducted

Words, speech perception and spoken word recognition are two different categories (Strauss, Harris, and Magnuson 2007). The first is about how we identify or perceive the sounds of language while the latter is about recognizing the words which are composed of sounds. Actually, concerning their difference or order in listening discrimination, there is still no consensus on whether speech identification should necessarily be prior to spoken word identification. Perception is the process of attaining awareness or understanding of sensory information or the way to think about something (Kozlova 2023). It refers to human judgments or feeling about something that ever done. In this paper, the term speech perception or sound perception is used to denote the process of both phoneme and word comprehension and may be used changeably with word recognition for the convenience of the context.

Review of literature

a. Speech Perception

Speech perception and spoken word recognition are two different categories(Jusczyk and Luce 2002). The first is about how we identify or perceive the sounds of language while the latter is about recognizing the words which are composed of sounds. Actually, concerning their difference or order in listening discrimination, there is still no consensus on whether speech identification should necessarily be prior to spoken word identification.

Savin and Bever tried to prove that syllable is the fundamental and meaningful unit in speech perception (Savin and Bever 1970), while based on some experimental evidence, Marslen-Wilson and Warren held that phoneme classification and lexicon activation share certain simultaneous process, because they argued that lexical representations can be directly gained on the basis of the featural information in the sound signal(Gaskell and Marslen-Wilson 1997). According to Qiong perception is the process of attaining awareness or understanding of sensory information or the way to think about something. It refers to human judgments or feeling about something that ever done(Suyadi and Aisyah 2021).

In this paper, the term speech perception or sound perception is used to denote the process of both phoneme and word comprehension and may be used changeably with word recognition for the convenience of the context.

b. The process of speech perception

According to Miller & Eimas there is no theory in speech perception, because the only detailed evidence is the evidence from psychophysical studies. To have a better

understanding of speech perception, this section intends to expatiate on its psychological identity(Zhang 2014).

Generally, Steil, Barker & Watson stated that listening is a process of sensing, interpreting, and evaluating aural stimuli (Goldsmith and Griscom 2018). Clark and Clark described the process of comprehension simply:

1) (Listeners) take in the raw speech and a certain representation of it in "working memory".
2) They immediately attempt to organize the phonological representation into constituents, identifying their content and function.
3) As they identify each constitute, they use it to construct underlying propositions, building continually onto a hierarchical representation of propositions.
4) Once they have identified the propositions for aconstitute, they retain them in working memory and at some point purge memory of the phonological representation. In doing so, they forget the exact wording and retain the meaning. (Kurnia, Rahmawati, and Fitriyana 2020)

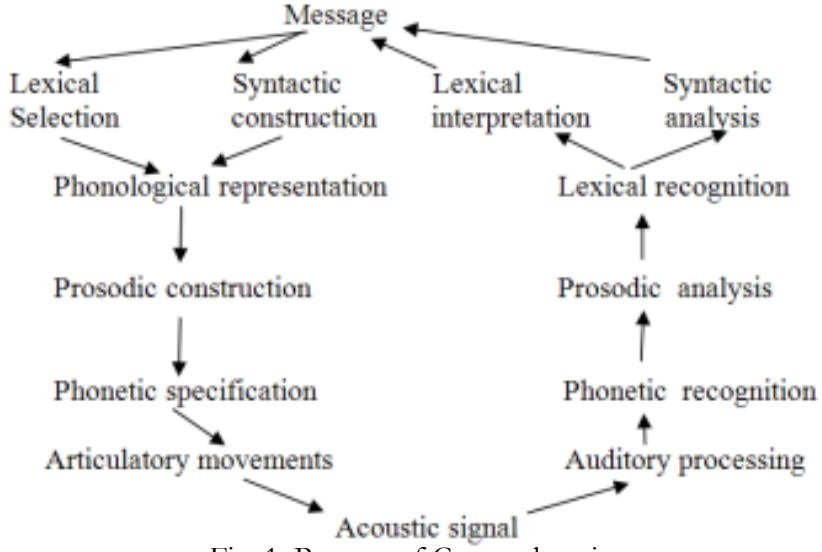

Fig. 1. Process of Comprehension

In the chart, Kent and Read described that the communication process begins with the selection of words in accordance with the messages to convey by the speaker; at the same time he must determine the appropriate sentence structure that supports the meaning of the message contained in the words he has chosen (Green, Bach, and Harnish 1983). The words selected require utterances which match the messages, associated with the sentence structure by considering aspects of prosody, and then sound specification is formed and ready to be articulated to become a message in the form of acoustic waves. Once the acoustic signal reaches the ears of those who listen, the process of this listening comprehension commences.

c. Native speakers understanding Native speakers

Problems of speech perception experienced by native speakers of English were reported to occur when listeners failed to perceive unstressed vowels. These vowels are normally modified in order for the speakers to simplify the articulation process. As a result,

the quality of vowels in unstressed syllables may be misperceived or may even be perceptually lost or added (McCormack et al. 2010). Look at the example below:

(1) Grammar Workshop ⟶ Grandma workshop
(2) Attacks in the ear ⟶ a tax on the ear
(3) Dec writer ⟶ decorator
(4) I teach speech science ⟶ I teach a speech signs

Failure of perception experienced by non-native speakers of English may also be caused by the same thing as experienced by native English speakers, but open the possibility of other causes such as limited English ability, the difference of the characteristics between the source language and the target language in terms of speech patterns and the inability to identify the speech sound.

d. Non-native speakers understanding native speakers' utterances

Research conducted by Wang Developing Accuracy and Fluency in Spoken English of Chinese EFL Learners shows Chinese EFL learners may have difficulty in speaking fluent and accurate English, for their speaking competence are likely to be influenced by cognitive, linguistic and affective factors. This paper reported the difficulties faced by Chinese students in understanding spoken English (Wang 2014).

Research Method

The research design used is case study, especially the observal case study. The Data The data of this research is the document. The document in this case refers to texts which are taken from the utterances spoken by the students that then be transcripted. The subject of this research is the third semester students of English Education Department STKIP Al Maksum.

Instrument of the Data

The instrument of the data is the speech perception test. It was adopted to investigate the role of speech perception in the process of listening comprehension. For this purpose, the subjects were assigned to listen to some sentences spoken by a native speaker of English to test subjects' ability to detect the 'tonicity' and 'tonality' represented by six elements of clitics and tonics and two mixed elements of clitics and tonics, forming connected speech. While listening, they were required to jot down every string of word they heard. All the sentences they wrote were analyzed to find out some possible slip of the ears on the 'onset', 'middle tonic', and 'tonic' (tonic elements), and 'proclitic', 'interval clitic', and 'enclitic' (clitic elements). The misperceptions occurred reflect problems faced by the subjects in comprehending the intonation phrase they listened to.

Data analysis procedures

The data were analysed based on Bogdan and Biklen's stages/steps (Bogdan, R., & Biklen 2017):

1st: Searching The Data

The data used in this research is the texts which are taken from the utterances spoken by the students by using the Speech Perception test. The process includes:

1. Data Collection. Here, Researchers collect data from students through a specifically designed speech perception test to measure their phonetic perception abilities.
2. Transcription. The collected speech is transcribed into text format to facilitate further analysis. This transcription process is performed meticulously to ensure high accuracy of the data.
3. Data Validation. The transcribed data is validated by several experts to ensure the accuracy of the transcription and to avoid misinterpretations.

2nd: Arranging the Data

In this stage, the data is arranged based on the theory of speech perception and the problems in speech perception. The steps include:

1. Categorization. Here, the collected data is categorized based on various aspects of speech perception, such as phoneme recognition, intonation, and rhythm.
2. Grouping. The categorized data is then grouped according to the problems identified in the students' speech perception, such as difficulty in distinguishing certain sounds
3. Coding. The grouped data are assigned specific codes to facilitate the analysis process. Each category and group of data is given a unique code that aligns with the theory of speech perception.

3rd: Interpreting

In this stage, the data were interpreted based on factual and theoretical aspects. The steps include:

1. Factual Analysis. The data are analyzed to identify common patterns and differences in students' speech perception. This analysis includes counting the frequency of perception errors and identifying the most common types of errors.
2. Application of Theory. The factually analyzed data is then related to the theory of speech perception to provide a theoretical explanation for the findings. This involves applying theoretical concepts to understand the causes of students' speech perception difficulties.
3. Conclusion. Based on the factual analysis and theoretical application, researchers draw conclusions about the research findings. These conclusions include explanations of the main findings, implications of the findings, and recommendations for further research or practical application in language teaching.

Findings

a. Experiment- 1

Words spoken and heard are in the condition of room with background music. Some of the students pronounced words and sentences (as the speaker) and others were as the hearer.

(Kind of music: Classical Music)

(Artist: Kitaro and Vanessa Mae)

- Words

The students made some mistakes in hearing those words as follows:

1. Many participants perceived "Touch" as "Dutch." This indicates a possible difficulty in distinguishing between the 'T' and 'D' sounds, which are phonetically similar. When the speaker said Touch, the hearer heard the word Dutch. In this case, the consonant T heard as D. It is because of both consonants are in the same place of

articulation: Alveolar. This phenomenon is called as Coarticulation that also deals with Voice Onset Time

2. When the speaker said Pet, the hearer heard the word Bet. Many participants perceived "Pet" as "Bet," showing a potential issue in distinguishing between the 'P' and 'B' sounds. It has the same case with the first case above, the consonant P heard as B. Still, It is because of both consonants are in the same place of articulation: Bilabial. This phenomenon is called as Coarticulation that also deals with Voice Onset Time.
3. When the speaker said Bean, the hearer heard word Been. In this case, [i:] as in the vowel of bean is similar with [i:] as in the vowel of been. Here, vowels generally are the most difficult to distinguish.
4. When the speaker said Garter, Many participants perceived it as Cartel. "Garter" was misperceived as "Cartel" by more than four participants, indicating confusion, possibly due to unfamiliarity with the word "Garter." The hearer misperceived the word Garter /ˈgɑːr.tər/ becomes Cartel /kɑːrˈtɛl/ because both words are in the same place of articulation (Velar). It is also one of the rare words that harder to recognize than the common one.
5. Gobbledygook cannot be perceived well because it is a rare word. "Gobbledygook" was partially recognized as "Gobble…" by most participants, suggesting difficulty with longer, less common words. As we all know that common words are easier to recognize than rare words.
6. The hearer did not made mistake in the words Make, flower, Torn, Push, and Dentistry. Those words are clearly heard and because those words are really familiar to the hearer. It shows clear recognition to those words. In this case Personal Values or Interests was really helpful.

- Sentences

The students made mistake in perceiving the designed sentences:

1. Turn on the heater switch was perceived as "Turn on the….hitch," indicating a possible difficulty in perceiving the word "heater" correctly. The participants might have missed or confused the middle part of the sentence.The hearer spent much times to figure out the "fills in" word because they paid more attention on the beginning of the word than the ends of the word. It is because the music played in the room.
2. The stick moved the leaf was perceived as "The stick modelly," showing a significant misunderstanding, likely due to the phonetic similarity and context confusion.
3. The banks of the river are seen from this bridge was perceived as "The banks of…..this bridge," showing difficulty in capturing the entire sentence, possibly due to its length or complexity.

b. Experiment-2

Words and Sentences, written and read, are in the condition of room with the light off (in the evening where the sun light has deemed). In this case the students read the words and sentences.

- Word

Words Accurately Read: Participants correctly read 6 out of 10 words. These words were:

1. Make
2. Pet
3. Bean
4. Flower
5. Push
6. Dentistry

Words Misread: Four words were misread by the participants. These were:

1. Touch was read as Torch
2. Garter was read as Carter
3. Torn was read as Tom
4. Gobbledygook was read as Gobleygook

Accuracy: The overall accuracy of reading words was 60%.

- Sentences

The students also made some mistakes in reading sentences in Experiment-2 as follows:

1. Wrong words because some letters are seen to be alike the correct one as found in sentence 1, 4, and 7.
2. Sentence 2, 3, 5, 6, 8, 9, and 10 are correct not because they are perfectly could be read but because the students used Visual Recognition Threshold. For instance, if there is word 'bacon', then, there must be word 'eggs'.

Discussion

Experiment- 1

The findings in experiment-1 showed that certain phonetic similarities can lead to misperceptions of spoken words. Specifically:

1. Phonetic Similarities: Words with similar initial consonant sounds, such as "Touch" and "Dutch" or "Pet" and "Bet," can be easily confused. This highlights the importance of clear articulation in speech, especially with consonant sounds that are phonetically close.
2. Familiarity with Words: Participants showed greater accuracy in perceiving familiar words like "Make," "Flower," and "Dentistry." This suggests that familiarity plays a significant role in speech perception accuracy.
3. Word Length and Complexity: Longer and less common words, such as "Gobbledygook," are more prone to misperception, possibly due to the increased cognitive load required to process them.
4. Vowel Sounds: Words with similar vowel sounds, such as "Bean" and "Been," were correctly perceived, indicating that vowel sounds are generally easier to distinguish when context is provided.
5. From the sentences designed in this experiment, there were several important aspects of speech perception as followed:
6. Articulation and Familiarity: Sentences that were clearly articulated and familiar to the participants, such as "She hits the ball" and "We love music," were accurately perceived. This implies that familiarity with the vocabulary and clear articulation significantly enhance speech perception. The more you store vocabularies, the easier you perceived the words/sentences.

7. Phonetic Similarity and Context Confusion: Some sentences, like "Turn on the heater switch," were misperceived, likely due to phonetic similarity and the lack of context clarity. Participants might have struggled with distinguishing certain phonetic elements in less familiar contexts.
8. Sentence Complexity: More complex sentences, such as "The banks of the river are seen from this bridge," gave challenges for participants because of the incomplete perception.

Experiment-2

The results indicated that reading accuracy in dim lighting conditions is compromised and leading to a higher likelihood of misreading words.

1. Visual Cues: Words like Touch and Torch or Garter and Carter are visually similar, especially in low light. This indicates that participants relied heavily on the initial letters and general shape of the words to identify them.
2. Phonetic Similarity: The similarity in sounds between misread words and their intended words (e.g., Touch/Torch) highlights the role of phonetic cues in speech perception. Participants may have predicted the word based on familiar phonetic patterns.
3. Cognitive Load: Reading in dim lighting increases cognitive load, making it harder to process and accurately read words. The brain compensates by using shortcuts, relying on familiar patterns and cues, which can lead to errors.
4. Sentence 2, 3, 5, 6, 8, 9, and 10 are correct not because they are perfectly could be read but because the students used Visual Recognition Threshold.

Conclusions

Based on the experiments that had been done above, some conclusions can be drawn as follows:

1. It was more accurate in hearing vowels rather than hearing consonants. It is because most consonants are shorter in duration than vowels. The short duration and lower amplitude of consonants make them harder to perceive than vowels.
2. Intelligibility of spoken words heard against background noise was better when the words were in sentences as compared to when they were alone.
3. Those results about sentences appear to indicate that the hearer/listener pay more attention to the beginning of the sentences rather the end word of the sentences.
4. Personal Values or Interests and Visual Recognition Threshold are really helpful in perceiving words or sentences in hearing spoken words and sentences in the room with background music and the room with the light off/ dim lighting.
5. In both conversational speech and laboratory studies, vowels were perceived more accurately than consonants. It is because most consonants are shorter in duration than vowels. The short duration and lower amplitude of consonants make them harder to perceive than vowels.
6. Common words were easier to recognize than rare words. Normal sentences are easiest to perceive.
7. The performance will be improved if the the lights was turned back on, because the hearing processes were not interrupted as such by the noises and dark room. When the researcher turned the lights on, the perception worked correctly and so as that the comprehension because the participants could see the speaker pronouncing the

words clearly (by looking at the movement of her mouth/lips) and heard her clearly when she pronounce the words.

REFERENCES

Bogdan, R., & Biklen, S. K. 2017. "Qualitative Research for Education: An Introduction to Theories and Methods(6th Ed.)." *Pearson*.

Gaskell, M. Gareth, and William D. Marslen-Wilson. 1997. "Integrating Form and Meaning: A Distributed Model of Speech Perception." *Language and Cognitive Processes* 12 (5–6). https://doi.org/10.1080/016909697386646.

Goldsmith, Daena J., and Abbey Griscom. 2018. *The Sourcebook of Listening Research : Methodology and Measures. The Sourcebook of Listening Research: Methodology and Measures*.

Green, Georgia M., Kent Bach, and Robert M. Harnish. 1983. "Linguistic Communication and Speech Acts." *Language* 59 (3). https://doi.org/10.2307/413908.

Jusczyk, Peter W., and Paul A. Luce. 2002. "Speech Perception and Spoken Word Recognition: Past and Present." *Ear and Hearing*. https://doi.org/10.1097/00003446-200202000-00002.

Kozlova, Natalya Yu. 2023. "Metaphorical Correlation as a Mechanism of Thinking." *Voprosy Filosofii* 2023 (6). https://doi.org/10.21146/0042-8744-2023-6-95-103.

Kurnia, Melawati, Maya Rahmawati, and Wahyudin Fitriyana. 2020. "Playing E-Quizzes With Kahoot!: Students' Behavioral Engagament on Reading Comprehension Through Kahoot!" *English Ideas: Journal of English Language Education* 1 (1).

McCormack, Jane, Sharynne McLeod, Lindy McAllister, and Linda J. Harrison. 2010. "My Speech Problem, Your Listening Problem, and My Frustration: The Experience of Living with Childhood Speech Impairment." *Language, Speech, and Hearing Services in Schools* 41 (4). https://doi.org/10.1044/0161-1461(2009/08-0129).

Savin, H. B., and T. G. Bever. 1970. "The Nonperceptual Reality of the Phoneme." *Journal of Verbal Learning and Verbal Behavior* 9 (3). https://doi.org/10.1016/S0022-5371(70)80064-0.

Strauss, Ted J., Harlan D. Harris, and James S. Magnuson. 2007. "JTRACE: A Reimplementation and Extension of the TRACE Model of Speech Perception and Spoken Word Recognition." *Behavior Research Methods* 39 (1). https://doi.org/10.3758/BF03192840.

Suyadi, Suyadi, and Siti Aisyah. 2021. "Students' Perception on Learning English For Law Faculty Students at University of Batanghari Jambi." *Jurnal Ilmiah Universitas Batanghari Jambi* 21 (3). https://doi.org/10.33087/jiubj.v21i3.1719.

Wang, Zhiqin. 2014. "Developing Accuracy and Fluency in Spoken English of Chinese EFL Learners." *English Language Teaching* 7 (2). https://doi.org/10.5539/elt.v7n2p110.

Zhang, Shujing. 2014. "An Analysis of English Majors Speech Perception Problems." *Journal of Chemical and Pharmaceutical Research* 6 (6).