



EFL learners' phonemic awareness: A correlation between English phoneme identification skill and word processing

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This research aims to find out the correlation between English phoneme identification skills and word processing. It applies the quantitative approach with correlation design. The participants are 100 of 3rd- semester students in English Language Education Program. The correlational result reveals that it has correlation with .382 degrees in phoneme identification skill toward blending skill with the significance level .000, and .359 degrees in phoneme identification skill toward segmentation skill with the significance level .000. Then, the correlation result of English phoneme identification skill toward word processing is .462 degree with its significance .000. By the result, awareness to identify phoneme by initial, medial, and final sound correlates to the blending and segmenting skills which influence the comprehension of word. The more the students are able to identify phoneme based on its sound, the more the students will be able to blend and segment phoneme. Lastly, the ability to identify English phonemes is proven to be a skill that supports EFL learners on their productive and receptive skills. Then being able to identify its phonemes will assist on recognizing and processing English words appropriately so that English language teaching can be associated with the use of phoneme-based instruction on its teaching process.

Keywords: English Phoneme, Phonemic Awareness, Phoneme Identification Skill, Word Processing, EFL Learners

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INTRODUCTION

Segmental level of phonological awareness can be characterized as the combination of phonetic and phonemic awareness. Phonetic awareness demonstrates EFL learner's ability to characterize English consonants in points and manner of articulation aspect, English vowels in tongue height, tongue position, lip rounding, diphthongs and triphthongs aspect, in English words, it is certain aspects of English consonants and vowels (Hismanoglu, 2012). Furthermore, having a good level of phonological awareness can increase foreign language learners' accuracy level on word reading and spelling. Specifically speaking, phonological awareness has an impact on literacy acquisition as Zhao et al. (2017) states that metalinguistic skills have an impact on literacy acquisition.

Then, phonemic awareness strengthens the prediction by segmenting the word, so the listener will recognize the exact word being heard. Afterward, when it comes to literacy acquisition, with the help of the phonological and phonemic awareness, it will increase the vocabulary knowledge. Kalia et al. (2018) states that states that children's early development of phonolo-

gical awareness presents as their ability to differentiate between large segments of sounds (i.e. words, rimes) in their language and proceeds to their ability to manipulate phonemes (i.e. distinct units of sound that distinguish one word from another) in their language. Consequently, children begin recognizing large segments of sound and eventually they can manipulate phonemes. Then, by able to manipulate phoneme, it enables them to create new words so that their vocabulary will elevate.

According to Venkatagiri and Levis (2009), Phonemic awareness enables EFL learner's ability to mix phonemes into syllables, and syllables into words, add, remove, change, or rearrange phonemes or groups of phonemes within a word or a phrase, segmenting a word into phonemes and syllables, recognize the position of a specified phoneme or a sequence of phonemes within a word, identify rhyming and alliterating words and produce rhyming and alliterating words.

In early development of phonological awareness, it presents as children's ability to distinguish between large segment of sound (i.e. words, rhymes) and progresses ability to manipulate phoneme (i.e. units of sound distinguishing one word to another) in their language (Kalia et al., 2018). Some researcher believes that the development of phonemic awareness should be started from childhood. This can be reasoned because giving children exposure of letter names and sounds in earlier stage can give them a concrete way understanding phoneme simultaneously while they learn to read and write. Phoneme awareness tends to develop quickly when children learn to read and write in alphabetic languages. On its process, children learn phonemic awareness gradually. By 3 or 4 years of age, their syllable awareness is usually developed, and it is followed by onset-rime awareness by the ages of 4 or 5. Nevertheless, their phoneme awareness is often delayed until they learn to read and write first. By the time they grow older, the level of sensitivity and awareness of phoneme will be better until they come to the level of understanding word processing.

Additionally, having a good understanding of phoneme since children, English foreign language learners can do word processing faster and better. The more the students are able to identify English phoneme based on its sound, the more the students will be able to blend and segment phoneme which influence the word processing skill. It is also important that phonemic awareness can enhance EFL learners' skill on processing word through identification of sound, blending, and segmentation skill.

Optimal speech processing and efficient word recognition in the L2 is dependent on the development of a complete L2 phonological system that will effectively limit the influence of the L1 knowledge during processing (Darcy et al., 2015). Gaining a thorough knowledge of foreign language phonological system can be a measurement that EFL have a capability to do a word processing and recognition. While listening to someone speaking, it is a process in which listeners try to discover lexical form that the speaker intended to produce (Zellou and Dahan, 2019).

Discovering this lexical form is based on the phonetic

information spoken by the speaker. In the process of decoding the phonetic information, subconsciously listeners do a word processing. The spoken utterances will be decoded into its smallest part, so the listener will try to understand the conveyed meaning by their understanding of phonological knowledge and awareness. When it comes to writing area, ability to decode spoken word is also required. Performing writing requires ability to form letters into words, to spell words, and to use proper punctuation. Consequently, having a good phonological awareness is necessary to do those writing requirements. Possible pathway to learn writing skills including learning to write words in oral vocabulary, memorizing spelling of whole words, or analyzing sounds of words is through the understanding of phonological awareness and its used to map sounds into symbols (Dixon, 2011).

As a non-native speaker, Indonesian EFL learners may face problems recognizing English phoneme. The first can be reasoned because phonemic system of a language can be different from one to another language. Difficulties occur for the non-native learner, however, because there are always important differences between the phoneme system of one language and that of another (Collins and Mees, 2013). When it comes study of sound, exposure of phonemic awareness needs to be risen up and given more. EFL learners' sensitivity to the sound structure of English words is relatively underdeveloped due to their inadequate exposure to oral English (Lee and Man, 2011). The second is due to the lack of ability to segment words. As in a process of listening, listener grabs the conveyed meaning by segmenting each word uttered by the speaker to its smallest part which is phoneme. Then, by being able to do this segmentation, the listener will be able to understand words being heard, and the conveyed meaning will be understood precisely. At this point, phonemic awareness influences listening skill.

Sawyer and Fox (1991) states that when comprehending or producing an utterance, mature language users normally are unaware of the individual phonemes and words comprising the utterance and the grouping relationships among the utterance's constituent words, unless they deliberately think about it. Without enough exposure given, foreign language learners will not have adequate knowledge of phonemic awareness. The exposure itself can be gained through formal situation like classroom, or EFL learners can find online resources to study by themselves.

Some previous studies have been a useful references while conducting this research. The results of those show interesting findings. The first previous study has been done by Yurianto (2019) on a state owned university in Indonesia 2019. Lintar's research focused on finding awareness of the participants, who are third semester students of English Language Education Program of a state owned university in Indonesia, on their phonemic awareness level. It aimed to know English phonemic awareness of the English Language Education Program students through three skills: identification, blending, and segmentation skill. The result showed that English Language Education Program students' phonemic awareness was poor.

The second previous study was conducted in 2016 by [Alhumsi and Affendi \(2016\)](#). Focus of the study was to review some literatures regard to the topic with the aim to research relationship between phonemic segmentation toward word recognition on the beginner readers. Its result is concluded that phonemic segmentation represents as a must-have bridge in the development of word recognition. The third previous study was done by [de Graaff et al. \(2011\)](#). The focus of the research was to provide more insight on the use of phonemic awareness task including blending, segmentation, isolation, and deletion that was meant to find the level of difficulties of each phonemic task. The participants were 141 students at kindergartners (74 boys & 67 girls). Instruments used were in form of task with four different focus (blending task, segmenting task, isolation task, and deletion task). The result showed that children performed better on phoneme blending and phoneme isolation compared to phoneme segmentation and phoneme deletion. It was also said that phoneme blending was easier than phoneme segmentation. Four linguistic factors mentioned above was provenly said that each performance of doing the task is dependent on the phoneme position which is initial and final position.

To summarize all the previous studies above, the second previous study shows that phonemic awareness influences word processing. By having the previous studies, it can be seen that effect of phonemic awareness on word processing has ever been researched in the level kindergartners. Although there is research on how phonemic awareness influences word processing skill, the research are done kindergartners level, but less is done in higher education level. Moreover, according to the result of the first previous study focusing to find phonemic awareness level on English Language Education Program, it is revealed that the level of phonemic awareness on higher education level is still poor. It means that there is something that needs to be done on why the level of phonemic awareness is still poor, but the level of education is high. By the result of this previous study, it can be said that there is an issue on how phonemic awareness level relates to word processing skill, and how they correlate to each other.

METHODS

Participants

The participants used to take the data were 100 students of 3rd semester in English Language Education Program of a state owned university in Indonesia. The participants were students who took Introduction to English Linguistic subject. The researcher assumes that the more the data used, the better the result it will be. Likewise, [Creswell \(2012\)](#) explains that correlational design should have an sufficient size for use of sample such as $N = 30$; more numbers will contribute to less error and better claims of representativeness. Additionally, to make the number of participants even, the researcher only uses 100 ELEP students.

Research Design

The present study focuses to find the correlation between students' English phoneme identification skill and word processing skill measured by blending and segmentation skill. In this present study, the research data are in the form of statistical data which later are used to find the relationship of the variables. In correlational research designs, researchers make a use of the correlation statistical test to elaborate and measure the degree of association (or relationship) among two or more variables [Creswell \(2012\)](#). It also applies a quantitative approach since correlational design is under the scope of quantitative approach. Furthermore, the data is expected to have linear relationship for the result. Through the data, the correlation used is bivariate correlation. The result that explains a correlation statistic as a linear relationship is the result of variables correlation coefficient. It is also called bivariate correlation, zero order correlation, or simply r , and it can be characterized by an "r" for its notation ([Creswell, 2012](#)).

Instruments and Data Collection

This research used the Phonemic Awareness test instrument that was adopted from [Heggerty and Van Hekken \(2003\)](#).

1. Phonemic awareness test

Based on [Heggerty and Van Hekken \(2003\)](#) instrument, there are 5 skills to be measured. Those are:

a. Identification skill

- Onset fluency: focusing on identifying initial sound in words
- Identifying final sound in words
- Identifying medial sound in words

b. Blending skill: focusing on the blending phoneme into words

c. Segmentation skill: focusing on the segmenting words into phonemes.

While doing the Phonemic Awareness test, participants were asked to finish five skills on the test. Skill 1 to 3 were measured for the identification skill. Participants were given time to identify onset fluency, final sound, and medial sound. Whereas, skill 4 was assessed to look at the skill of the participants to blend phoneme into words. Skill 5 was concerned about the of the participants in segmenting words into phonemes. Lastly, after all of the data were gained and scored, the correlation between variables will be calculated in SPSS using bivariate correlation.

Furthermore, the procedures of the research are as follows: Select the participant, and collect data. While selecting the participants in which the 3rd semester ELEP students taking Introduction to English Linguistic subject, it is assumed that students taking this subject have been given exposure about phoneme. So, they will be able to do the phonemic awareness test. In the process of collecting data, it was taken in the

form of quiz of phonemic awareness test instrument adopted from Heggerty and Van Hekken (2003). Its process is done through audio test.

Data Analysis

The data were analyzed as follows:

1. Examining

Researcher examines the data based on the test that has been administered before. The correct answers will be calculated on average.

2. Calculating

The Phonemic Awareness test is calculated on its average by giving score 1 for each correct answer and the total score for each skill is 10.

a. Calculating the English phoneme identification skill score

$$\frac{\text{Onset fluency} + \text{Final sound} + \text{Medial sound correct answer}}{30} \times 100$$

b. Calculating the blending skill score

$$\frac{\text{Correct answers}}{10} \times 100$$

c. Calculating the segmentation skill score

$$\frac{\text{Correct answers}}{10} \times 100$$

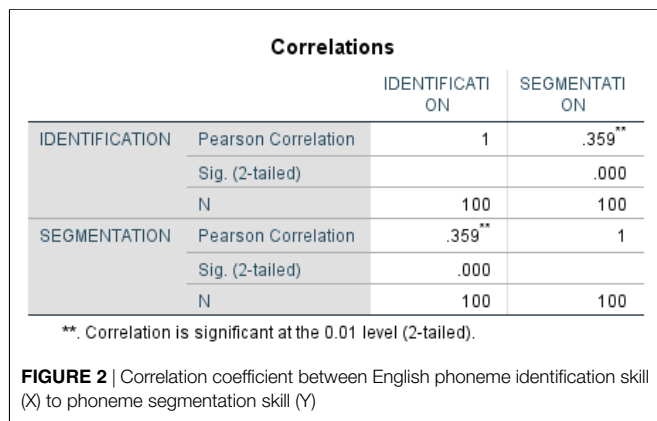
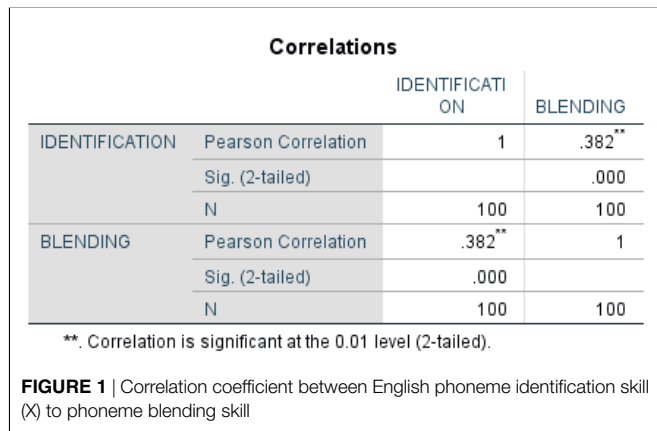
d. Calculating the word processing skill score

$$\frac{\text{Blending} + \text{Segmentation skill correct answer}}{20} \times 100$$

3. Analyzing data

The collected data is calculated firstly through Ms. Excel then to see the correlation result, the data were analyzed through IBM SPSS. The first is to find the correlation between English phoneme identification skill toward blending skill. The English phoneme identification skill score and blending score are put on the SPSS table then the correlation result is analyzed. Then, to find the correlation between English phoneme identification skill toward segmentation skill. The English phoneme identification skill score and segmenting score are put on the SPSS table then the correlation result is analyzed. Lastly, to see the correlation of English phoneme identification skill toward the word processing skill, both scores that have been calculated previously are put on the SPSS and analyzed.

RESULTS AND DISCUSSION



As can be seen on the \$, it can be concluded that correlation coefficient between English phoneme identification skill (X) to phoneme blending skill (Y) is .382 which is categorized having medium correlation as the correlation is considered significant at the level 0.05. The P value is .000 < 0.05 which shows that the two variables show significant correlation.

On the **Figure 2**, it can be concluded that the correlation coefficient between English phoneme identification skill (X) to phoneme segmentation skill (Y) is .359 that is categorized having medium correlation as the correlation is considered significant at level 0.05. While the P value is .000 < 0.05 which shows that the two variables show significant correlation.

Correlations			
		IDENT	BLENDSEGM
IDENT	Pearson Correlation	1	.462**
	Sig. (2-tailed)		.000
	N	100	100
BLENDSEGM	Pearson Correlation	.462**	1
	Sig. (2-tailed)	.000	
	N	100	100

** . Correlation is significant at the 0.01 level (2-tailed).

FIGURE 3 | Correlation coefficient between English phoneme identification skill (X) to word processing skill (Y)

Figure 3 shows that correlation coefficient between English phoneme identification skill (X) to word processing skill (Y) is .462 that is also categorized having medium correlation as the correlation is considered significant at level 0.05. While the P value is $.000 < 0.05$ which shows that the two variables show significant correlation.

DISCUSSION

Different characteristics of English and Indonesian phonemes can be a problem for students in understanding phonemic awareness. Some study explicates that pronunciation error or mistake is considered as typical for English speaker in Indonesia, and most of them are due to negative transfer of their mother tongue, Bahasa Indonesia, to English (Gozali, 2019). It indicates that first language phoneme may influence English phoneme acquisition. Therefore, English phonemic awareness is fundamental to equip students mastering English skills. Likewise, EFL learners are supposed to be aware of English phonemes and are supposed to have a good phonemic awareness level, yet their phonemic awareness is shown poor. Additionally, English phonemic awareness is contributing to word processing skills. Moreover, Alhumsi and Affendi (2016) explains that the ability to thoroughly use sound manipulation by blending and segmenting sounds in words may result in a higher word knowledge and processing.

This research tried to validate ELEP students' awareness of identifying phonemes in isolation that may help them in processing words by blending and segmenting English phonemes. It reveals that there is a significant correlation between English phoneme identification skill toward blending skill ($r = .382$) and segmentation skill ($r = .359$) with both P values are significant in .000. These findings indicate that phoneme identification skill contributes to blending and segmentation skill since phonemic awareness provides both decoding and encoding skill. Terry (2019) states that phonemic awareness is necessary for reading and spelling since it provides decoding and encoding skills. Decoding is a process of breaking down or separating spoken or written words into its smallest part. In other words, it is the ability to segment words. Ehri (2005) as cited

in (Haft et al., 2019) states that word decoding refers to simple mapping printed words to sound, but in reality, it involves numbers of lexical and sublexical processes including phonological and orthographic processes. On the other hand, Encoding is a process of using the decoded information to create new words. For instance, after decoding words into its smallest part and understanding the phoneme, then learners will be able to blend different phonemes to make a new word.

Also, phoneme identification skill has a significant correlation with blending and segmentation skill, it can be seen here that there is also a significant correlation between English phoneme identification skill toward word processing skill by combining blending and segmentation score. It reveals that the correlation coefficient is .462 with the P value is significant in .000. Recalling that mastering English should have a good understanding of phonemes and having awareness on it will make EFL learners easy to understand English words. Then, combined with the knowledge of phoneme identification skills, it will be easier to understand the word correctly. By being able to understand the word and its phoneme correctly, it will help to manipulate phoneme in word, make up word from phoneme, and break down word into phoneme easier. Moreover, it can be said that the higher level of ELEP students phoneme identification skill, the higher it will contribute to word processing skills as it is measured by phoneme blending and segmentation skill. In addition, Alhumsi and Affendi (2016) states the representation of phoneme in letter can be used to identify sound letter that is beneficial to understand spoken words correctly and grasp its meaning so that being able to recognize and identify the phonemes will assist on processing words.

In English language learning, being able to do word processing is necessary. Blending skill will help learners to form up correct new words that later their vocabulary knowledge will increase, and it will help leveling up speaking proficiency by avoiding mispronunciation since learners already know how to pronounce words with its correct English phoneme. As EFL learners can identify phonemes in isolation and understand its sound representation, it will assist them in matching spoken word into its phonemes. Consequently, when it comes to writing, learners can write a spoken word properly by matching its sound representation to its letter. According to Frost (2001) letter competence seems to emerge from the basis of phonemic awareness through word production. It can be said that the ability to produce spoken or written word comes from awareness of phoneme and its letter representation.

Phoneme segmentation skill that provides decoding skill will assist EFL learners in comprehending words while listening by identifying its sound that has been simultaneously segmented to its smallest part. In a reading process, it is a thinking process which is initially begun by words understanding, if the reader is not able to understand the words, they will not be able to comprehend the whole passage of text. On its process, it requires the phonemic awareness that will assist them understanding words properly. In addition, every letter that has a

particular sound will help recognize words while reading. By being able to segment words to phonemes, EFL learners can perform reading better by knowing its sound representation that can be used to avoid mistakes when understanding words. Furthermore, it can also be said that phonemic awareness has a causal relationship with reading comprehension. As described by National Reading Panel's study (2000) as cited in Pohlman (2013) not being able to recognize individual sounds in words, a reader is unable to sound out words. When the reader cannot decode to sound out words, they will not be able to understand the words in the text. If the reader does not know the words in text, they will not be able to create meaning or comprehend what he or she is reading.

Since the correlation coefficient is shown higher on the blending skill, it can be said that ability to identify phoneme correlates to the phoneme blending more significant rather than in phoneme segmentation. Being able to blend phoneme which provides encoding skill contributes on EFLP productive skills better. Burgoyne et al. (2013) explains that the ability to sound out words and blend phonemes is essential strategy for language learners to overcome new and unfamiliar words, and this strategy is helpful for speaking. Students performing a good blending skill are assumed to be able to perform speaking and writing better. It is assisted by the ability to use and understand phonemes used to form up words, so when it comes to productive skills, EFLP students can pronounce and write words appropriately.

It also seems that blending skill is easier to do than segmentation skill. In line with de Graaff et al. (2011), it is found that phoneme blending and phoneme isolation is easier compared to phoneme segmentation. In phoneme blending task, English phonemes transcription are provided in which the students are asked to form up words from the English phonemes provided. While in phoneme segmentation task, English phonemes transcription are not provided, and the students are asked to segment word to its phonemes depend on their knowledge. In that case, students having less awareness and understanding of English phonemes cannot do the segmentation task as easy as the blending task.

In conclusion, knowing the fact that EFLP students have a struggle and their phonemic awareness level is categorized poor, there must be some causing factors. The factors might be having less intensity of learning phonemes or thought that phoneme does not really matter when mastering English. However, learning phonemes have proven that it can be a starting point when learning English. Kasim et al. (2017) also states that the problem faced by EFL learners during learning English comes from linguistic factors.

Meanwhile, phonemic awareness is considered important since it also contributes to both English receptive and productive skill. It will help EFL learners to comprehend spoken words precisely by correctly identifying its sound, improve vocabularies by understanding words correctly, pronounce words accu-

rately, and avoid mistyping words. By the result of this study phoneme knowledge and understanding how to identify it contributes to word processing skills. The more the students are able to identify the phoneme based on its initial, medial, and final sound, the more the students will be able to blend and segment the phoneme. Likewise, de Graaff et al. (2011) shows that phoneme blending, segmentation, and deletion is dependent on the ability to recognize phoneme position in which initial and final position. Furthermore, phoneme identification skill enables EFL learners to do phoneme blending and segmentation in word processing since it functions as an anchor to recognize phoneme position. Then, phonemic awareness promotes skills to identify, blend, and segment phoneme in word processing as the basic knowledge and understanding.

CONCLUSION

Phonemic awareness is an essential skill to be considered when EFL learners are eager to master English well. Since phonemic awareness can be measured through some sub skills, this study focuses on 3 skills: phoneme identification, phoneme blending, and phoneme segmentation. It is found that EFLP students' word processing skill measured through blending and segmentation skill is influenced by their ability to identify phonemes in isolation. This research validates the hypothesis that the skills of identifying phonemes in isolation correlate to the skills of word processing. Therefore, the awareness of a single phoneme of English is necessary for EFL learners since it presumably contributes to word processing skills. By knowing this, the association of English phoneme identification skill toward word processing skill can be assumed as an anchor to measure the word processing skill level.

Lastly, it can be concluded that awareness to identify phonemes in isolation contributes to the word processing skill that influences EFLP students comprehension and production of words. The ability to identify English phonemes is proven to be a skill that supports EFL learners on their productive and receptive skills since the ability to comprehend English word comes from the ability to identify the word firstly. Then, being able to identify its phonemes will assist on recognizing and processing English words appropriately so that English language teaching can be associated with the use of phoneme-based instruction on its teaching process. Moreover, in a future research, it is suggested that next researcher conducts a deeper inquiry on how English phoneme identification skill can be a use for English skills.

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