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The Association between Linguistic Competence Components and Listening Comprehension of Thai EFL Learners

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Abstract
This study aimed to investigate the extent to which there is an association between components of linguistic competence and listening comprehension and to examine whether one component of linguistic competence is a stronger predictor of listening comprehension than another. Participants included 107 Thai EFL learners whose major is English, and they were asked to complete a linguistic competence test and a listening comprehension test. Correlation and multiple regression were used to determine the statistical relationship between linguistic competence components and listening comprehension. Results indicated that all components except syntactic competence significantly correlated with listening comprehension albeit mostly in small correlations. Listening comprehension significantly correlated with phonological competence (r = 0.296, p = 0.002), morphological competence (r = 0.292, p = 0.002), and the strongest predictor was semantic competence (r = 0.326, p = 0.001). Although linguistic competence significantly correlated with listening comprehension in EFL learners, it had only a small influence on listening comprehension due to the covariance of 16.4 per cent out of all factors involved in listening success.

Keywords: EFL Learners, Linguistic Competence, Listening Comprehension

INTRODUCTION

Listening is a cognitive process that intertwines various complex mechanisms involving the coordinated operation between neurological processing and linguistic processing (Barker, 1971; Weaver, 1972; Cutler, Dahan, & Van Donselaar, 1997). In order to comprehend audio input, the neurological processing primarily supports listeners in receiving the input, activating related constituents, such as attention or consciousness as well as transferring the input to the listeners' minds (Liberman, Cooper, Shankweiler, & Studdert-Kennedy, 1967). Linguistic processing engages the manipulation of the input by integrating phonological, morphological, syntactic and semantic competence to help listeners understand a message before they generate a response (Cutler & Fodor, 1979). According to Cutler, Dahan and Van Donselaar (1997), the integral processing between neurological processing and linguistic processing automatically collaborates in terms of receiving, decoding and interpreting in comprehending the audio input. Hence, the more fluent neurological processing and linguistic processing contribute to the more effective listening comprehension.

Besides the cognitive systems, listening comprehension also involves two kinds of competence including non-linguistic as well as linguistic competence to deal with the incoming input (Buck, 2001). According to Eysenck (1998), non-linguistic competence utilizes macro-level mechanisms (e.g., accessibility of stored knowledge in long-term memory) to help listeners understand the concept, topic or context of what they listen to. In other words, the shared knowledge between listeners and speakers or listeners' prior knowledge and the incoming audio input can provide understanding as well as mental images to promote listening comprehension. For instance, a speaker says that his dog did it again, and if the listener has shared knowledge about the speaker's dog, the listener will be able to immediately recognize which dog he is talking about and what crime it had committed. To give another example, a listener listens to a happy-ending drama, and when the story is halfway through, they may correctly predict the ending. This is a result of the familiarity with the happy-ending theme, which the listener possesses in his/her prior knowledge. Al-Qaraghooly and Al-Bermani (2010) explain that non-linguistic competence is always coincidental with linguistic competence which can help listeners discriminate, recognize and understand the spoken message.

Linguistic competence relates to the application of phonological, morphological, syntactic and semantic knowledge in activating micro-level mechanisms, such as acoustic signal analysis, word retrieval as well as syntactic and semantic interpretation (Clark & Haviland, 1974). For example, a listener needs to segment the ending phoneme of the past-tense verb as well as recognize the adverb of time when listening to a story about the past or the listener may interpret the background event and the main event of past-continuous-tense and past-tense sentences to comprehend the circumstance in the story. According to Cutler and Cliftion (2000), linguistic components (i.e., phonological, morphological, syntactic and semantic competence) in listening can be neither completely separated nor combined when they are functioning. This means that in order to comprehend the continuity and coarticulation of the audio input, the simultaneous activation of partially overlapping components of linguistic competence functions.

Accordingly, these non-linguistic and linguistic components used to comprehend audio input operate depending on the cognitive tasks (e.g., for the familiar-context audio input, listeners' mind weighs more on non-linguistic competence meanwhile for the speed and unfamiliar-context audio input, the linguistic competence is more activated.) (Cutlter & Cliftion, 2000; Clashsen & Felser, 2006). In other words, these phenomena of non-linguistic and linguistic competence activation occur in a form of problem-solving. However, the way to identify whether the non-linguistic competence or linguistic competence should be employed relies on linguistic competence to discriminate sounds or recognize words in the continuous audio input. Hence, it can be claimed that linguistic competence is the basis of listening comprehension. Subsequently, many scholars (e.g., Anderson, 1995; Cutler & Clifton, 2000; Schneider, Avivi-Reich, Leung, & Heinrich, 2016) have attempted to examine the relationship between linguistic competence and listening comprehension in different ways.

Over the past decade, research on linguistic competence and listening comprehension has become more extensive; however, it is still limited compared to the relationship between other dimensions of listening comprehension studies (e.g., listening strategy or affective filter studies) (Vandergrift & Cross, 2018; Rudner, Ahlander, Brännström, Nirme, Pichora-Fuller, & Sahlen, 2018).

In addition, regarding linguistic competence, most studies have solely been found to emphasize each component of linguistic competence to listening comprehension. For example, Rabia (2019) studied only the relationship between phonological competence and listening comprehension whilst Becker (2016) studied the relationship between listening comprehension and semantic competence, Sapoetra (2017) studied listening comprehension and syntactic competence, and Masrai (2019) studied on listening comprehension and morphological competence. All the findings suggest a strong relationship between the individual linguistic competence component and listening comprehension; nevertheless, it remains unclear whether all linguistic competence components are interrelated in the identical context. Moreover, even though some researchers use the term linguistic competence in their studies, some parts of linguistic competence (e.g., only phonological and morphological competence) are illustrated in their research focus. To illustrate, the studies of Avivi-Reich, Daneman and Schneider (2014) as well as Schneider, Avivi-Reich, Leung, and Heinrich (2016) employed the term linguistic competence, but only phonological and morphological competence were tested. This entails insufficient information to account for the relationship between linguistic competence and listening comprehension. Additionally, the participants employed in most studies are natives of English and advanced English as a second language (ESL) learners. However, less proficient English as foreign language (EFL) learners who experience more difficulties with linguistic competence and listening comprehension are understudied.

Many EFL learners encounter serious obstacles in developing linguistic competence as well as achieving listening comprehension. According to Krashen, Long, and Scarcella (1982) as well as Karimi (2016), the development of linguistic competence of EFL learners is not parallel as a result of their different degrees of personal exposure to the English language. In other words, some learners may have a higher exposure to English morphology while others are more exposed to another component of linguistic competence. Many studies have examined factors affecting English exposure in a foreign language environment, and one of the key factors is the prior linguistic competence influence (Rast, 2010). There are cross-linguistic influences in every aspect of EFL learners' interlanguage (e.g., phonology, morphology, syntax and semantics). The level of linguistic transferability or development depend on linguistic distance and salience. In addition, the higher or lower level of transferability or development associates with how English can be salient to learners (Lu, 2010). For instance, Thai learners may be easier to perceive the English syntax (e.g., subject-verb–object sentence structure) than phonology (e.g., dropped consonants or intonations).

This notion is supported by Samer and Zoubi (2018) that the learners have inconsistent exposure to components of linguistic competence of English as evidenced by the difference in exposure level. Therefore, due to the unequal exposure, the development of each type of linguistic competence is varied which consequently entails various difficulties in speech perception, such as the inability to discriminate acoustic cues because of lacking phonological competence or failing to interpret messages due to syntactic or semantic competence deficiency. According to Gilakjani and Ahmadi (2011), as a result of linguistic competence limitation during information processing in a speech perception process, the learners' listening comprehension is unsuccessful. To illustrate, learners with limited vocabulary stop and think about the meaning of unfamiliar vocabulary causing them to miss the next part of the speech. Several studies reveal that developing only one

component of linguistic competence (e.g., shadowing audio texts to develop phonological competence or vocabulary drilling to develop morphological competence) can improve listening comprehension (Rabia, 2019; Migdadi, Yunus, & Daradkeh, 2019). This implies that if one component out of four unequal linguistic competence components is higher and makes listening comprehension improved, there may be a dominant component in helping the learners comprehend audio input. Therefore, this study aims to investigate the extent of correlation between the linguistic competence components and listening comprehension as well as examine whether one component of linguistic competence is a stronger predictor of listening comprehension than another.

Linguistic competence

The term 'linguistic competence' was introduced by Chomsky (1965). It is suggested that this notion is directly related to the theory of generative grammar (i.e., a system of rules that generates language) and provides a clearer picture of language. Chomsky (1965) distinguished 'linguistic competence' from 'linguistic performance'. Linguistic competence is one's mental representation of linguistic rules while linguistic performance refers to the ability to produce or comprehend the language.

Later in the 1970s to early 1980s, when the social-oriented model of second language acquisition emerged, many scholars attempted to revise Chomsky's notion of linguistic competence and performance. Hymes (1972), Halliday (1973) as well as Canale and Swain (1980) stated that Chomsky's theory of linguistic competence (1968) was impractical. It did not account for differences among languages, and Chomsky's (1965; 1968) definition of linguistic competence only focused on the grammar, but no reference was made to socio-cultural or contextual rules, which entails the lack of sufficient evidence to explain the output of performance. In other words, besides the grammatical rules which cover the competence of phonology and morphology, Chomsky's definition of linguistic competence cannot explain why individuals produce speech differently in the same situation. Therefore, the components presented by Hymes (1972), Halliday (1973) as well as Canale and Swain (1980) are syntax and pragmatics. The phonology, morphology and semantics (i.e., how words, phrases, clauses or sentences are pronounced, structured and what they mean) are accounted for as parts of syntax and concerning the pragmatics (i.e., how language is used in situations) was added when the correspondence between competence and performance is considered.

In addition, Smith and Wilson (1990) also proposed their view of linguistic competence. They stated that linguistic competence does not only cover syntactic rules governed in a language, but also the pronunciation and meaning of words constructed by those rules. Smith and Wilson (1990) argued further that linguistic competence is used for two main tasks. First, it monitors language production (e.g., separating grammatical from ungrammatical sentences, right and wrong word choices, correct pronounced and mispronounced speech, or definite or indefinite meaning interpretation) and identifies potential mistakes or errors. In addition, they argue that L2 learners possess different levels of linguistic competence because competence is not simple but complex and subtle. Thus, the richness of linguistic competence relies upon an individual's exposure as well as memory storage capacity. Linguistic competence is an unconscious stored knowledge of how the expression is pronounced and the meaning attached to those sound and orthographic

features in a grammatical sentence (Smith & Wilson, 1990). Notably, there are four components specified by Smith and Wilson (1990) comprising phonology (i.e., stored information on phonological features as well as phonological rules), morphology (i.e., stored information of internal morphological features of the word), syntax (i.e., stored information of how words are put together to construct phrases, with how phrases are put together to build longer phrases or clauses as well as with how clauses are put together to create sentences) and semantics (i.e., stored information of meaning of words as well as the meaning of the word relations in a sentence, and these can be technically called lexical semantics and phrasal semantics). Unlike in the social-oriented model, pragmatic competence is not part of the notion of linguistic competence presented by Smith and Wilson as they consider it as a type of non-linguistic competence, and a part of semantics in cases of alteration of meaning based on contexts.

To sum up, there are different explanations of linguistic competence based on researchers' interests as well as assumptions. In this study, linguistic competence is indicated based on Smith and Wilson (1990) due to the coherence of the listening process that listeners' mind unconsciously employs four faculties of linguistic competence (i.e., phonological, morphological, syntactical and semantic competence) in comprehending audio input.

Listening comprehension

Similar to linguistic competence, listening comprehension has also been defined in a variety of ways. The most widely accepted explanation of listening comprehension relates to the process of constructing understanding from the audio input. In other words, listening comprehension normally relies upon subconscious competence stored within listeners' minds. When audio input is internalized, different sources of competence are systematically and unconsciously derived.

Vandergrift (2002) explains that in listening comprehension, listeners usually employ two sources of competence including non-linguistic and linguistic competence. Firstly, non-linguistic competence involves listeners' knowledge that has been acquired in their life as well as mental images stored in their minds. Both are drawn to process the audio input by calling on similar scenarios and previous experiences. In other words, for this source of competence, listeners can comprehend the theme or main idea of what they listen to. Secondly, linguistic competence relates to phonology (i.e., the sound system), morphology (i.e., the morphological form and morphological formation), syntax (i.e., how words are combined to form phrases, phrases are combined to form broader phrases or clauses, and clauses are combined to form sentences) as well as semantics (i.e., the meaning of words, phrases or sentences). It plays a role when we discriminate sounds, recognize words, and interpret the audio input by analyzing units in some linguistic dimensions. Explicitly, linguistic competence helps listeners gather the details for their listening comprehension. For example, listeners may know that the situation occurred in the past by segmenting the -ed sound of the verb used and/or noticing the adverb of time. It is seen from Buck (2001) and Vandergrift (2002) that the top-down process always involves the non-linguistic competence, and the bottom-up process relates to linguistic competence when the listening comprehension.

Regarding Buck (2001) and Brown (2007), listeners do not separately activate non-linguistic and linguistic competence to handle the flowing audio input. Instead, non-linguistic competence and linguistic competence are activated for different purposes during listening. To illustrate, for the

non-linguistic competence activation in the top-down process, if listeners cannot catch all words in the audio input, they will get the gist from some words. As in top-down processing, listeners create metal images or know the contexts by building meaning based on supposition, conclusion, purpose, and other pertinent information in order to try to recognize linguistic expressions. On the other hand, for the linguistic competence activation in the bottom-up process, if listeners are not familiar with the topic they listen to, they will focus on every single word to know what it is about. In bottom-up processing, listeners initially try to decode a message by focusing on sound patterns or internal structures of words, rules and meaning before understanding scenarios. The co-existence of these two processes is basically an interactive process (Tokeshi, 2003).

Besides linguistic and non-linguistic competence engaging in listener factors in understanding the audio input, listening comprehension also involves audio-input and speaker factors. Cutler and Clifton (2000) explain that the audio input reaching the ear carries other noises in the environment. Therefore, listeners need to primarily distinguish the audio input from other background noises reaching the ear at the same time. In addition, different phonemes contain distinctive features from articulatory factors (e.g., a place of articulation to produce [k] is different from [b]), so it may lead to some obstacles in decoding the whole audio input when phonemes come together as a pattern. Besides decoding phonemes, there are other factors influencing decoding the audio input, such as the speakers' coarticulated words as well as the quality of sound.

As the audio input produced by the speakers is normally coarticulated (i.e., they do not speak one segment discretely after another), the listeners have to be competent in phonology to identify and decode phonemes as well as phoneme patterns. If listeners cannot identify the sound they listen to, they will not be able to decode it into a phonetic representation. For instance, listeners cannot identify whether they hear the sound [ʔ] or [ʔ], so they cannot determine whether the word is *complement* or *compliment*. Moreover, the quality of sounds, such as speakers' voice, amplitude and speech rate, also affects listeners' audio input decoding. Different speakers have different voices (i.e., someone has a high-pitched voice, and someone has a low voice), and sometimes, the tones of voice may be difficult for listeners to identify the phonemes. Similarly, if the speakers utter too far from listeners to hear it, or even utter very fast, the listeners may not even detect anything (Cutler and Clifton 2000).

Objectives of the study

The objectives of the study were (1) to investigate the extent of the correlation between linguistic competence components and listening comprehension and (2) to examine whether one linguistic competence component is a stronger predictor of listening comprehension than another.

METHOD

Participants

The participants in the current study included 107 third-year English major students in the Faculty of Humanities and Social Sciences at Nakhon Ratchasima Rajabhat University for the academic year 2020 using convenience sampling.

The participants' English listening proficiency level was classified into A1-B2 by using Dialang, the international placement test. According to Dialang (n.d.), learners who can understand very simple

phrases about basic personal topics (e.g., personal information or friend) with slow and clear messages were classified as A1 level, learners who understand expressions and common words and get the main point of useful information (e.g., travel announcements and directions) in short, clear and simple messages were classified as A2 level, learners who can understand the main points of clear standard speech on familiar matters (e.g., school, tv or radio current affairs) in relatively slow and clear messages were classified as B1 level, and learners who understand longer stretches of speech and complex lines of argument involving reasonable familiar topics (e.g., personal and professional life).

Initially, there were 131 participants (i.e., seventy-four A1 participants, twenty-seven A2 participants, fifteen B1 participants and fifteen B2 participants); however, there was an exclusion due to the submission time of the online test. Some test submission checks detected too little time spent (less than 10 minutes out of the total 40 minutes) which could assume that the participants guessed the answers and too much time spent completing the tests (more than 40 minutes as a result of using time detection instead of time limitation). The total number of exclusions was twenty-four participants (i.e., fifteen A1 participants, two A2 participants, one B1 participant and five B2 participants).

Instruments

The instrument included a linguistic competence test and a listening comprehension test. A linguistic competence test comprised of four subtests including a phonological awareness test adapted from Venkatagiri and Levis (2007), a morphological awareness test adapted from Bian (2017), and a syntactic awareness test adapted from Cain (2007) and a semantic awareness test adapted from Lehmann (2007). The vocabularies used for the adaptation in all tests were randomly selected from the Oxford 3000 Word List (2019). For a phonological test, there were seven main tasks to assess different phonological constructs including phonological blending, phonological manipulation, phonological segmentation, phonological sequencing, rhyming and alliteration and non-word reading. In some tasks, participants needed to record and upload audio/video clips into the link provided. However, the tasks did not take time (e.g., saying one to two words). Additionally, participants were suggested to use mobile phones for this test in order to ease the recording and uploading. For a morphological awareness test, there were four main tasks to assess morphological awareness including morphological form, morphological formation, reading vocabulary and listening vocabulary. For a syntactic awareness test, there were three main tasks to assess syntactic awareness including knowing the grammatical structure of sentences (form) by using language element task, manipulating the grammatical structure of sentences (meaning) by using situational response task as well as producing the grammatical structure of sentences (use) by using grammar construction task. For a semantic awareness test, there were two main tasks to assess semantic awareness including lexical semantics and phrasal semantics. Each test contained 40 items and participants were allowed to complete it within 40 minutes.

Meanwhile, a listening comprehension test adopted from dialangweb.lancaster.ac.uk was used for the listening comprehension and placement test, and there are three tasks including listening for detail, inferencing, and identifying the main idea. The recording in each item was played once before allowing participants to select the correct answer. There were three different sets of the

test varying texts according to the vocabulary level of participants and switching items for the same level. However, the total number and topic were the same.

Due to the coronavirus-19 transmission, a linguistic competence test was conducted online through Google form while a listening comprehension test was directly conducted via the website. The topic of the tests was selected by focusing on topic familiarity due to the control variable (i.e., non-linguistic competence). The specification of each test was presented in Appendix 1.

Data collection

The participants were given explanations about the listening and linguistic competence tests, and the time detection feature in each linguistic competence test, which required them to manage time and finish each linguistic competence test within forty minutes. The listening comprehension and placement tests were firstly conducted to get listening comprehension scores as well as separated them into English listening levels based on the Common European Framework of Reference for Languages (CEFR) (A1-B2), and the linguistic competence test was provided based on participants' English listening level. After the English listening level of participants had been determined, participants were assigned to complete and submit a linguistic competence test including the phonological awareness test, morphological awareness test, syntactic awareness test and semantic awareness test within a month. Therefore, participants could manage their time to complete all sub-tests of the linguistic competence test.

Data analysis

All results of participants' responses were assessed. For answers to filling in the blank and multiple-choice questions, the scores were checked according to the scoring rubric (i.e., one point per correct response). Meanwhile, performance in video clips in the phonological awareness test was rated by employing inter-rating scales from two people including the researcher as well as the university teacher majoring in English to avoid bias. After the result was scored, the statistics of correlation and multiple regression were used to generate the statistical outcome for answering research questions.

Descriptive statistics (i.e., mean and standard deviation) and correlation were employed to analyze the data from the linguistic competence test and listening comprehension test in order to investigate the statistical relationship between two variables including linguistic competence and listening comprehension. In addition, a multiple regression analysis was used to measure the relationship between independent variables (i.e., components of linguistic competence including phonological competence, morphological competence, syntactic competence and semantic competence) and a dependent variable (i.e., listening comprehension) in order to examine whether one linguistic competence component is a stronger predictor of listening comprehension than another.

FINDINGS AND DISCUSSION

Table1 Correlation and multiple regression predicting listening comprehension (N=107)

	Zero-order r						**SE**	***p***
Predictors	Semantic Competence	Syntactic Competence	Morphological Competence	Phonological Competence	Listening Comprehension			
Intercept						7.204	1.855	.000
Phonological Competence					.296 (.002)	.184	.081	.025
Morphological Competence				.435	.292 (.002)	.062	.101	.542
Syntactic Competence			.519	.395	.147 (.131)	-.082	.098	.403
Semantic Competence		.406	.612	.240	.326 (.001)	.157	.070	.028
Linguistic Competence	.789	.731	.846	.661	**.359 (.000)**	.089	.023	.000
Mean	18.91	16.36	17.95	21.92	13.96	R^2 = .164		
SD	8.423	5.711	6.490	6.537	5.103			

*Significantly at 0.05.

According to the assumption testing, the association between linguistic competence components and listening comprehension is linear, and there is no multicollinearity in the association between linguistic competence components and listening comprehension as VIF values were below 10 and tolerance values were above 0.2. In addition, the values of residuals were independent as the obtained values were close to 2 as evidenced by the Durbin-Watson value of 1.037, and the values of residuals which were normally distributed were constant as the residuals showed no obvious signs of funnelling. Besides, there were no influential cases biasing the model as all values were under 1 suggesting individual cases were not influencing the model.

Based on the first research question, the extent of correlation between linguistic competence and listening comprehension was investigated. The result reveals that the correlation between linguistic competence and listening comprehension is less than 0.5 (r = 0.359, p = 0.000) which means there is a statistically significant relationship between linguistic competence and listening comprehension. However, considering the components of linguistic competence, it was found that all components except syntactic competence significantly correlate with listening comprehension. The following correlations were found: phonological competence (r = 0.296, p = 0.002), morphological competence (r = 0.292, p = 0.002), syntactic competence (r = 0.147, p = 0.131) and semantic competence (r = 0.326, p = 0.001).

Furthermore, to answer the second research question, a multiple regression was calculated to examine whether one linguistic competence component is a stronger predictor of listening comprehension than another. The result of multiple regression indicates that a significant regression equation is found (F(4,102) = 4.985, p < .001), with an R2 of .164. The predicted listening comprehension of participants is equal to 7.204 + 0.184 (phonological competence) + 0.062 (morphological competence) + 0.157 (semantic competence) – 0.082 (syntactic competence), where they are measured in scores. Participants' listening comprehension increased by 0.184 scores for each score of phonological competence, 0.062 for each score of morphological competence, and 0.157 for each score of semantic competence. Meanwhile, participants' listening comprehension is decreased by 0.082 scores for each syntactic competence which shows a negative relationship to listening comprehension. It is seen that phonological competence ($?$ = 0.025) and semantic competence (p = 0.028) are significant predictors of listening comprehension, and the stronger predictor is semantic competence (r = 0.326).

Regarding the investigation of a correlation between linguistic competence and listening comprehension in the current study, the result shows a positive linear relationship between linguistic competence and listening comprehension. This corresponds to the findings of some other studies (Oh & Lee, 2014; Karal?k & Merç, 2019) showing that there are relative contributions of linguistic competence to L2 listening comprehension. Although linguistic competence significantly correlates with listening comprehension, it has only a small influence on listening comprehension due to the covariance of 16.4 per cent out of all factors involved in listening success.

Noticeably, besides linguistic competence, a number of factors affect listening comprehension achievement. Nichols (1948) suggests that apart from the listener's competence and characteristic, the speaker's characteristics, speech production ability and quality as well as channels or methods of speech delivery can apparently influence listening comprehension. Flowerdew and Miller (2005) claim that not only linguistic and non-linguistic competence plays a role in cognitive activities in the listening process, but also individualization, affective factors, and textuality. This study lends some support to this conclusion as linguistic competence accounted for less than 20 per cent of participants' listening comprehension.

The findings are also consistent with a number of studies nowadays (Worthington & Fitch-Hauser 2012; Asriati, 2017; Oh & Lee, 2014). Worthington and Fitch-Hauser (2012) claim that elements affecting listening comprehension can be classified into five aspects including cognitive factors (e.g., curiosity, intelligence, concentration), linguistic factors (e.g., sound discrimination ability,

recognition of correct grammatical usage, size of vocabulary), speaker-related factors (e.g., speaker effectiveness, speech delivery ability), contextual factors (e.g., interest of the topic, listener's exhaustion), and demographic factors (e.g., listener's gender or age). Asriati (2017) categorizes the dominant factors engaging in listening comprehension into four major aspects including linguistic competence, concentration, listener characteristics (e.g., experience or intelligence), and speaker characteristics (e.g., pronunciation or speed of delivery), and his result reveals only a small proportion of linguistic competence compared to other factors which can be supported by the result of Ghapanchi and Taheryan (2012) as well as Oh and Lee (2014) who investigate the linguistic competence in L2 listening exhibiting that linguistic competence can predict L2 listening with the covariance around 20 per cent. Nevertheless, linguistic competence in those studies consisted of receptive and productive vocabulary as well as grammar which can be one of the possible reasons why they generate a higher percentage than the current study. Linguistic competence in the current study is operationalized as four variables including phonological competence, morphological competence, syntactic competence and semantic competence.

It can be expected that EFL learners weigh more on some competence to comprehend incoming audio input. In listening, the cognitive system which basically relates to the competence of phonology, morphology, syntax and semantics is triggered to deal with different types of audio input (Bullmore & Sporn, 2012). When sequences of audio input are heard, learners' mind systematically and unconsciously activates competence to decode them and there is repeated retry-step processing until competence can decode or capture the idea (Brownell, 1996). However, unequal and restricted development of linguistic competence components in EFL learners consequently makes their competence activation for comprehending the audio input limited (Krashen, Long, & Scarcella, 1982; Avivi-Reich, Daneman, & Schneider, 2014; Karimi, 2016; Schneider, Avivi-Reich, Leung, & Heinrich, 2016; Joyce, 2019).

In the current study, most EFL learners are in the A1 level which corresponds to low mean scores for their listening comprehension. Although the highest mean scores were obtained for phonological awareness followed by semantic awareness, then morphological awareness and syntactic awareness respectively, learners' listening comprehension seemed to rely more on semantic competence than on other components. This suggests that EFL learners employ semantic competence the most when interpreting audio input. Previous studies suggest a similar conclusion. Fung and Macaro (2019) studied the relationship between linguistic competence and listening comprehension strategies used by secondary school learners. The findings revealed that the learners weigh more on translation strategies which implied that learners' semantic competence was more accessed than other competence to comprehend what they are listening to. Moreover, Herrero (2017) claims that most learners tend to mentally translate individual words uttered to understand the meaning conveyed. It is also supported by Watthajarukiat, Chatupote and Sukseemuang (2012) as well as Namaziandost, Neisi, Mahdavirad and Nasri (2020) that EFL learners most frequently use translating or transferring the audio into their L1 for listening achievement.

The lack of correlation between syntactic competence and listening comprehension is in accordance with a previous study whose finding showed that the syntactic competence in EFL learners is inversed with listening comprehension (Mecartty, 2000). However, the finding of a

differential effect of syntactic competence cannot completely lead to the conclusion that it has no relationship to listening comprehension. The fact that there is no significant correlation may be a result of the discrepancy between tests, the stream of continuity and coarticulation of the audio input or other possible factors. Thus, it should be noted that our interpretation of this result is preliminary and open to further discussion.

CONCLUSION AND LIMITATIONS

The current study has contributed to the field of psycholinguistics and other related fields by investigating the predictors for listening comprehension for providing further information on how components of linguistic competence relate to listening comprehension. In previous studies, the relationship between one component of linguistic competence and listening comprehension was clearly accounted for; however, the comparison of all components of linguistic competence in the identical context of listening comprehension remained ignored. Thus, the present study aimed to fill this gap.

Furthermore, the present study has provided pedagogical implications for the teaching and learning of listening comprehension. The finding of this study can contribute to listening education by showing that knowing the sorts of linguistic foundations promoting listening comprehension can be applied in developing pedagogy. The identification of specific types of competence that significantly trigger listening comprehension makes it possible to develop a comprehensive curriculum to help learners succeed more in listening comprehension. Emphasizing semantic competence which is a stronger predictor of listening comprehension presented in the current study may affect the contributions that updating and shifting made to learners' L2 listening performance. Furthermore, the finding also benefits solving EFL learners' listening comprehension difficulties caused by a deficiency in learners' linguistic competence. A linguistic competence test can provide useful data for recognizing deficiencies in different aspects of subordinate competence (e.g., lexical and phrasal semantics in semantic competence) in order to be able to improve learners' knowledge precisely.

Some limitations in conducting the online tests can be noticed in the current study, and these should be addressed in future investigations. Firstly, the selected software for linguistic competence assessment has hidden some anxiety for participants since online testing was new to them. Thus, providing a clear explanation and understanding of the test construct and process as well as the software used is important. The selected software contains a lack of time limit and inconvenient accessibility. Although it was easy to manage, the time-limit function was not available when the test in the current study was developed which entails the inability to control the time of the test. Moreover, in piloting, using the software sometimes obstructs test submission of participants who use IOS operation system which can solve by informing participants to use a web browser to open the link of the test instead of directly opening the software. Secondly, the use of online testing also confronts difficulties related to testing administration. Participants may be allowed virtually a limitless amount of time to complete tests provided outside of class which makes it difficult to proctor test performance that may lead to cheating. Hence, further studies should carefully consider this online testing drawback. Besides, the non-linguistic predictor missing in this study is a good candidate for further investigation, and the findings of the current study need to be replicated with different samples and testing methods.

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Appendix

Appendix 1: Specification of Linguistic Competence and Listening Comprehension Test

Linguistic Competence Test consists of four subordinate tests including phonological awareness test, morphological awareness test, syntactic awareness test and semantic awareness test. The test specifications of each test are as below.

The phonological awareness test adapted from Venkatagiri and Levis (2007)

Tasks	No. of items	Time	Scoring (point)
1. Phonological blending	5	5 minutes	1 = correct; 0 = incorrect
2. Phonological manipulation	9	9 minutes	1 = correct; 0 = incorrect

3. Phonological segmentation	5	5 minutes	1 = correct; 0 = incorrect
4. Phonological sequencing	6	6 minutes	1 = correct; 0 = incorrect
5. Rhyming and alliteration	5	5 minutes	1 = correct; 0 = incorrect
6. Non-word reading	5	5 minutes	1 = correct no. of syllables and correct placement of stress; 0 point for incorrect
7. Phonological memory	5	5 minutes	1 = correct; 0 = incorrect
Total	40	40 minutes	40 points

The morphological awareness test adapted from Bian (2017)

Tasks	No. of items	Time	Scoring (point)
1. Morphological form	10	10 minutes	1 = correct; 0 = incorrect
2. Morphological formation	15	15 minutes	1 = correct; 0 = incorrect
3. Reading vocabulary	7	7 minutes	1 = correct; 0 = incorrect
4. Listening vocabulary	8	8 minutes	1 = correct; 0 = incorrect
Total	40	40 minutes	100 points

The syntactic awareness test adapted from Cain (2007)

Tasks	No. of items	Time	Scoring (point)
1. Language elements	10	10 minutes	1 = correct; 0 = incorrect

2. Situational responses	10	10 minutes	1 = correct; 0 = incorrect
3. Grammatical construction	20	20 minutes	1 = correct; 0 = incorrect
Total	40	40 minutes	40 points

The semantic awareness test adapted from Lehmann (2007)

Tasks	No. of items	Time	Scoring (point)
1. Lexical semantics	20	20 minutes	1 = correct; 0 = incorrect
2. Phrasal Semantics	20	20 minutes	1 = correct; 0 = incorrect
Total	40	40 minutes	40 points

The listening comprehension test adopted from dialangweb.lancaster.ac.uk

Tasks	No. of items	Time	Scoring (point)
1. Listening for detail	2	3 minutes	1 = correct; 0 = incorrect
2. Inferencing	8	17 minutes	1 = correct; 0 = incorrect
3. Identifying main idea	20	20 minutes	1 = correct; 0 = incorrect
Total	30	40 minutes	30 points