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Research Paper

Examining the Association between T-unit and Pausing Length on the EFL Perception of Listening Comprehension

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Abstract

Listening taking over half of the learners' time and effort (Nunan, 1998), forms a basis for acquiring much of a language. There are factors affecting listening comprehension and its perception, such as the speech rate, phonological properties of the text, the quality of the recording, the learners' anxiety, and listening comprehension strategies (Goh, 2000; Hamouda, 2013). At the Iran Language Institute in Dezful, S.W. Iran, some teachers attributed some learners' perception of partially unsuccessful comprehension of the recorded material to factors such as rate of speech, T-unit length, and pauses between T-units or inside T-units. This study aimed at the probable association between learners' and teachers' perceptions of these variables and compare them to the real qualities of the recordings they listen to. Thus, in an analytic single-shot design, a researcher-made questionnaire was developed and was answered by 504 (229 male and 275 female) participants together with their teachers in 21 classrooms across the six levels of proficiency at the Iran Language Institute. The results, not normally distributed, were juxtaposed with Kendall's tau and Spearman's rho correlation coefficients to ensure maximum agreement between the statistical analyses. The results

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indicated a strong or moderate correlation between the audio tracks' characteristics with neither learners' perceptions nor teachers' perceptions. Teachers' and learners' perceptions showed a moderate correlation between the perceived rate of speech and a weak correlation between their perceptions of between-T-unit pauses.

Keywords: Listening comprehension, T-unit, pause, Mean length T-unit, Perception, Rate of speech

Listening, developing from the early days of life of normal-hearing humans, plays crucial roles in various aspects of life through verbal communication, especially as the natural precursor and forerunner of speaking (Nation & Newton, 2009). It is such an important skill that Nunan (1998) claims that English language learners (ELLs) spend more than half of the time they function in a language class on listening. It is one of the most complex of all human activities researchers have increasingly been getting interested in (see Long, 1987; Masalimova, Porchesku & Liakhnovitch, 2016; Motlhaka & Wadesango, 2014; Wingfield & Tun, 2007; inter alia).

Listening comprehension appears to be a basic feature of language learning 'in most language programs,' (Renandya & Hu, 2018, p. 2) and even offered as stand-alone courses as well, with exercises and/or tasks in the textbooks. English language teaching (ELT) textbooks provided by the Iran Language Institute (the ILI hereinafter), a high-stakes, government-based language teaching institute in Iran, as no exception, provide learners with listening activities throughout their ELT courses. Nevertheless, the researchers have noticed learners' perception of a partial lack of understanding of the recorded materials.

In order to accomplish comprehension as a cognitive process, the input is attended to through various processes including neurological, linguistic, semantic, and pragmatic processes (Rost, 2011). Thus, the message will be linguistically decoded on the listener's side according to the listener's

expectations by perceiving sounds, identifying lexical items and phrases, and finally going through syntactic parsing of the message and forming a syntactic representation for it. Listening and reading involve this process of input segmentation (Kendeou, van der Broek, Helder, & Karlsson, 2014).

Research has shown reasons for unsuccessful listening comprehension on the side of learners (see Hamouda, 2013) and many, if not all, language teachers may share the experience of consulting learners with a partial understanding of the recorded materials. The teachers at the Iran Language Institute (the ILI), Dezful Branch, had previously conjectured the affecting factors to be the rate of speech (RoS), the lengths of chunks of speech, and the pause length between the chunks and within the chunks of speech. Since the chunking of the materials the teachers are prescribed to utilize to assist learning at the ILI is thought unit (T-unit), the present study aims at examining RoS, the mean length of T-unit (MLTU), inside-T-unit pause length (ITUP), and between-T-unit pausing length (BTUP) as prognosticated factors in inducing the perceptions of (un)successfulness of listening comprehension, by answering the following questions:

- RQ1: Does learners' perception of (un)successful listening comprehension relate to the overall RoS (i.e., the number of words uttered per minute)?
- RQ2: Does MLTU color the ILI learners' perception of (un)successful comprehension?
- RQ3: Does the length of pauses between T-units and inside them affect how well the learners understand the recordings?
- RQ4: Does the average teachers' perception of the above-mentioned factors' effectiveness on (un)successful listening comprehension match that of the learners?
- RQ5: Does the proficiency level of the listeners color their perception of listening comprehension difficulty?

Literature Review

Studies on the second language (L2) listening comprehension and the analysis of spoken language are mainly categorized into five subsections: (a) focusing on the development of definitions for listening comprehension; (b) investigations of listening difficulties; (c) research articles directed towards pausing; (d) analyses and segmentation of the oral input; and (e) empirical studies aiming at consolidating theory and practice. They are elaborated below.

L2 listening Comprehension

Research on listening comprehension began to be increasingly attended to in the early 1980s and, ever since, its important role in the field has attracted applied linguists (Nation & Newton, 2009), although Richards (2008) found listening and listening comprehension used interchangeably and synonymously in most methodology manuals as a result of the main function of listening comprehension: facilitating understanding of spoken discourse.

Chastain's (1971, p. 163) early definition of the term as "the ability to understand native speech at normal speed" fails to recognize the educational materials in the field of ELT, which are characterized by lower RoS and longer pausing (Chastain, 1988). Seemingly, later definitions of listening comprehension grow from the same conception of the term. In the following decade, Goss (1982) viewed listening comprehension as a process to understand the aurally received message and organize it into lexical and syntactic elements to which meaning can be assigned. Therefore, Goss incorporated the additional organization of the input into units to which the listener can apply meaning. Within this view, listening comprehension is a process through which the aural message delivered to the listener is (a) phonemic discrimination and recognition of lexical items, (b) formation of

syntactic elements from the recognized lexical items, and (c) finally comprehended.

Another definition of the term by Wingfield and Tun (2007) as comprised of a series of operations starting with source discrimination, in which one speaker's voice is separated from another speaker's and environmental noise. The desired voice will be attended to for further processing. Phonological analysis and lexical identification through attentional filters are the intermediate operations involved before linguistic and comprehension operations. Syntactic organization of the identified items, semantic operations, and finally analyses of discourse features of the input will be the last stages. They mention that many of the operations are performed sequentially, though the information may flow in both directions.

The present study focuses on listening comprehension tasks at the ILI which meet the criterion of unidirectional listening, as Blau (1991, p. 3) called "one-way oral input," most of the definitions suggested in the late 1990s and later may not apply due to the inclusion of asking and answering to verbal and/or non-verbal messages (see Purdy, 1997; Rost, 2011). Among all, Nadig (2013, p. 1743) views listening as encompassing the various processes of understanding and making sense of spoken language, involving the knowledge of speech sounds, understanding the meanings of individual words, and understanding the structure of the sentences they are presented in, i.e., the prosody of speech, context-relevant inference making, real-world knowledge, and the speaker's idiosyncrasies. This definition of the term matched the functions of listening comprehension tasks at the ILI and thus was adopted in the present study.

Perception of Listening Comprehension

Since the term 'perception' refers to a general 'feeling about'

understanding, a multifaceted (and complicated to the participants) technical concept for perception was not sought in order not to induce any kind of prejudgments. Providing explanations to the participants could have altered the results due to the directionality of the statements which were to be made before conducting the experiment. General feelings of understanding were left to the participants to be interpreted in their idiosyncratic fashions. Outnumbering 500, participants would view perception as the concept in lay terms.

Studies on L2 Listening-Related Difficulties

Listening comprehension is normally associated with such difficulties as accent, pronunciation, RoS, insufficient vocabulary, lack of concentration, and low quality of the recording (Hamouda, 2013) and even how listeners deal with their difficulties in listening (Goh, 2000). Nadig (2013) also points out that to understand longer stretches of language or discourse, the listener will require significant demands of memory, short-term and long-term, to keep track of the relationships among various parts of the speech, and the context in which the communication is occurring. The cognitive load exerted on the listener while processing the aurally received message may slow down input processing which is instantaneous and not repeatable in nature.

Lack of lexical resources has also been reported to be a reason for unsuccessful listening comprehension. Winfield and Tun (2007), in line with part of Hamouda's (2013) findings, noticed that learners perceived the difficulty of listening tasks as a result of their inability to recognize familiar words now in the stream of speech.

One more cause of difficulty in listening comprehension is found to be RoS. Griffiths (1990; 1992) reported that RoS faster than 200 words per minute (wpm) impaired lower-intermediate learners' comprehension. As

definitions of proficiency levels may not match those of the ILI, conclusions can hardly be drawn from his study. Hayati (2010) discovered that lower RoS was beneficial to lower-achieving listeners and improves their listening comprehension as this may provide some time for the act of input processing and logical judgments. Pausing and the length of pauses in the text can also modify RoS (Rost, 2006), and the rate of delivery can be lowered by increasing pause length.

Mohseni, Marzban, and Keshavarzi (2014) studied 60 candidates of the Test of English as a Foreign Language (TOEFL) and found statistically significant differences between the listeners' knowledge of chunks of language their control group. They found some combinations of words to form chunks were more influential on the improvement of L2 listening comprehension and learning: multi-word verbs, idioms, and collocations.

Studies on Pausing in Listening Comprehension

Pausing in speech has long been examined under the names of silence, pause, acoustic pause, etc., and in some cases, silence and pause have been used interchangeably (Ephratt, 2008). Speakers may also need to break their steady voice to breathe, plan further speech, reformulate their speech, etc..

Functions associated with pausing relate it to various cognitive and discursal reasons. Analyses of the spoken discourse show that hierarchically higher discourse boundaries are coupled with longer pauses and listeners need longer times to process the input (Den Ouden, Noordman, & Terken, 2009; Tyler, 2013). Speakers may still make pauses for other reasons such as turn-taking, hesitation, or changing the conversation topic. Research has shown that the difference caused by topic change affects pause duration (Smith, 2004; Yang, Xu & Yang, 2014). Blau (1991) mentions that the pause time made by the speaker is mainly for the purpose of speech planning, while on the side of

the listener, the same length of time is most often used for thinking and processing the input.

Krivokapić, Styler, and Parrell (2020) studied the existence of pause postures (configurations of the vocal tracts while pausing) in American English and concluded that pauses contribute to cognitive processes involved in speech planning in both aspects of production and comprehension of the language. They mention that grammatical and non-grammatical pauses occur in various parts of sentences. They acknowledge that grammatical pauses constitute a part of prosodic boundaries, while nongrammatical pauses are a result of speech planning processes.

More upcoming structural units lead to longer pauses, as it increases the cognitive load to be processed simultaneously (Watson & Gibson, 2004). Therefore, pause lengths depend primarily on the functions of the information to be conveyed and on the cognitive load exerted on the speaker and listener. The place of pause also depends on the syntactic or prosodic segments of the text, which are likely to co-occur. Oliveira (2002) conducted a study on pauses (as a structuring device) in narration and narratives and reached the same results as reasons for pausing in narratives for both speaker and listeners, too.

Chang (2018) reports studies that led to the conclusion that pauses seem to aid comprehension while mechanical slowing of the text might not. Sugai, Kanzaki, and Yamane (2007) carried out two experiments in a study and concluded that: (1) the existence of pauses increased listening performance, (2) longer subjects were a cause of lower listening comprehension results, (3) the listening scores increased for the words immediately following pauses, and (4) the length of pauses did not basically affect listening comprehension. These results induce the view that L2 listeners may generally benefit from pausing, especially if pauses are situated between syntactically grouped elements in sentences.

Longer syntactic elements in sentences lead to pauses occurring at longer distances, and consequently, longer syntactically related words, or longer MLTUs. Murniati (2018) found that university students tend to employ longer MLTUs in academic situations. At the ILI, general English seems to be prior to academic English, as academic and English for specific purposes (ESP) courses are held separately from the general courses.

Analysis of Spoken Language and Text Segmentation

Assessment and analysis of features of spoken language require a principled way of organizing and dividing the transcribed data into particular units (Rost, 2006). Thus, the language's qualities can be measured variously, i.e., in terms of RoS, phonological accuracy or variety, morphosyntactic complexity, etc.

To analyze segmentation units for spoken language analysis, Foster, Tonkyn and Wigglesworth (2000) reviewed 87 empirical research studies and concluded that scholars had measured oral language qualities using varying units: 'mainly semantic', 'mainly intonational' or 'mainly syntactic' (pp. 358-360).

One unit to measure it was Mean Length of Utterance (MLU), which Brown introduced (1973). Mean Number of Sentences per Turn (Crystal, Fletcher, & Garman, 1976) and Type-Token (Wagner, 1985) have been introduced and used by scholars, as well. Units received favor and disfavor from researchers. For example, in spite of its wide use, Type-Token measures children's language development (Richards, 1987).

Foster et al. (2000) also differentiated between native and nonnative speakers in terms of their segmentation of input: nonnative speakers rely on word-by-word processing significantly more than native speakers if not under communicative pressure. They also suggested that Analysis of Speech unit

(AS-unit) can be used by researchers as a comprehensive unit ‘for *all* [emphasis added] reasons’ (p.372), although not yet confirmed or agreed on by scholars.

Using various combinations of lexical items usually be used together (collocations) can also be considered as fixed chunks of sentences that can be considered a type of text segmentation. Shokouhi and Mirsalari (2010) recommended teachers to boost their students' involvement into both recognition and production of this type of chunks.

Another one of the most favorable units widely adopted for the text's complexity is T-unit, which Bardovi-Harlig (1992) described as especially useful for speech. Hunt (1965) defined it as ‘minimal terminable unit’. T-units are mainly depicted in research studies in the form of a complete sentence with subordinate and/or coordinated clauses. MLTU is also selected as another unit of analysis of speech (Moon & Choi, 2019).

Although T-unit is a well-accepted, frequently-used index of text complexity, by definition, it includes more syntactical items than is practiced at the ILI (The Iran Language Institute, 2006, p. 8). The ILI urges teachers to pause whenever they read phrases or clauses in Dialog or Reading passages to the students and write slash marks in the text where they hear a pause. This seems rather contradictory to the notion and definition of T-unit, which includes dependent and independent clauses rather than phrases.

Hunt (1965) sees T-units mostly in terms of sentences with or without dependent clauses and T-units are defined more broadly to include sentences and/or clauses, while the ILI adopts a rather narrower concept for T-units and instructs the teachers to present the language in the forms of shorter expressions, clauses or phrases with related grammatical functions, such as noun, adverbial or adjectival phrases, etc.

Lotfipour-Saedi (2015) suggested inclusion (and variations in inclusion)

of the elements of the utterance into the syntactic boundaries of the text be called 'T-unit configuration' (p. 5). The ILI seems to have taken a much narrower view of T-unit than that of Hunt's (1965) in their teaching instruction books for teachers, calling for a move toward T-unit configuration. Therefore, from this point onward, the term 'T-unit' will replace T-unit configurations according to the segmentation of text practiced at the ILI.

Related Empirical Studies

Among all the empirical studies, Blau (1990) concludes two studies on syntax, speed, and pausing by declining the concern with RoS and emphasizing that pausing on constituent boundaries significantly improves aural input's comprehensibility. However, prolonging the time (by pausing) a pattern must be kept in the short-term memory will impair comprehension.

Foster et al. (2000) conducted a meta-analytic study reviewing 87 empirical studies that involved text segmentation, showing that the units of text segmentation in various studies matched the researchers' attitudes towards text: syntax-oriented studies selected syntactic units, meaning-oriented studies chose semantic ones, and intonational units were preferred by pronunciation-oriented research studies. Hayati (2010) examined the role of RoS in listening comprehension of 62 participants and suggested that low and normal RoS appear to be beneficial to listening comprehension. He found that lower-achieving listener benefitted from the listening comprehension activities, and other students gained more from exposure to normal RoS. He calls for the inclusion of both slow and normal RoS into the curriculum. Tang (2013) worked on 'chunking' the input and its effect on listening competency and found that the language's chunking enhances language learning in general and listening comprehension in particular.

Rashtchi and Yousefi (2017) studied 66 Iranian undergraduates majoring

in English for input flooding through listening and reading to evaluate their effects on oral production of English. Their findings suggest that input flooding can improve their oral performance in terms of the numbers of words per T-unit (MLTU) and errors per T-unit.

Kuiken, Vedder and Michel (2019) examined linguistic complexity against the participants' proficiency levels to investigate the effects of L2 proficiency on the development of linguistic complexity. They also considered how teachers perceived L2 performance. Contrary to Hayati (2010) and several other researchers mentioned above, Banýrová (2019) found that RoS and pausing may not meaningfully anticipate the listeners' evaluations and perceptions.

All the discrete studies above consider the effects of pausing and input segmentation on listening comprehension. However, few research studies have been conducted on the effects of these variables on the perceptions of listening comprehension. A comparison of teachers' perception of listening comprehension to that of learners has also enjoyed far less research than it deserves as a basic skill.

Method

Participants

In this study, intact classes were chosen from the 18 possible levels from 'Basic' to 'Advanced' in the winter semester in 2020. There are six proficiency levels at the ILI, consisting of three 20-session courses each: Basic, Elementary, Pre-Intermediate, Intermediate, High-Intermediate, and Advanced. Depending on the number of running classes at each level, symmetry of gender was observed in the selection of classes at Boys' and Girls' departments.

In the sample population, the learner participants aged 26 and above were

omitted from the study as outliers in this variable, as this minority of age range might influence their educational needs and/or expectations and, subsequently, the study results. Overall, the 504 (229 male and 275 female) participants from different proficiency levels were chosen from among 21 intact classes.

The second group of participants consisted of ILI teachers who also responded to the questionnaires in their classes. Since some courses/classes were being taught by the same teacher, 9 teachers answered 21 questionnaires regarding their perceptions of the listening tracks played.

Instruments

Materials used for listening exercises during the study were Listening tasks included in the ILI textbooks. In the class presentation in this research, they were played for the ELLs, in exactly the same fashion as they are played through the normal classroom teaching procedure. The tracks played for the ELLs in this study were the classroom-only ones which are accompanied by listening comprehension questions, gap-filling, charts, etc. in the textbooks for evaluation of their understanding.

The instrument used in this research study was a questionnaire which consisted of 11 Likert items on four different areas in the study, i.e., RoS, MLTU, BTUP, and ITUP.

Although questionnaires measuring listeners' or teachers' perception of listening comprehension or its components in terms of RoS, MLTU, and pausing seems may not be found, various aspects of perception have already been studied and questionnaires have been devised for each (See Chang, Wu and Pang, 2013; Hasan, 2000; Kang, Thompson and Moran, 2019; and McBride, 2011). Among Iranian researchers, Namaziandost, Neisi, Mahdavi-rad and Nasri (2019) and Jafarigohar, Khoshsima, Haghghi and

Vahdany (2019), among others, have also have utilized questionnaires to evaluate the perception of listening comprehension from different viewpoints. Generally, they have researched learning strategies, learners' perception of problems, tasks, learner attitudes, text, the environment, etc., but have not attended pausing or the length of T-units as are the aim of the present study. Therefore, a questionnaire with Likert-scale items was devised in Persian, their native language, with four sections devoted to the learners' perceptions of listening comprehension, with a second questionnaire reworded for the teachers.

The questionnaire was developed under the supervision of two experts to improve content validity. Questionnaire items were also carefully selected based on the previously administered peer-reviewed research studies to strengthen the instrument's criterion-related validity. For the Internal validity of the test, several items, mainly including participants' characteristics, their attitudes, and data collector and collection situation, were accounted for. Participants' age, L1, the geographical location of the study to minimize gaps in sociocultural characteristics involved, and the time of administration of the survey in the middle of the course, and other confounding variables were observed. Collectors of the data were the teachers of the courses, and data collection followed the normal teaching of the listening exercises/tasks by the same teacher and in the same place and with the same audio/visual equipment as done in other sessions of the course. As the questionnaire addressed student participants, a modified version of this questionnaire was prepared to suit the teachers' position. For instance, the students' questionnaire read 'The more slowly the sentences were uttered, the more easily I could understand,' while the teachers' questionnaire posed a counterpart to the same statement from a teacher's point of view as 'The more slowly the sentences were uttered, the more easily my students could understand.' The reliability of the test was

calculated using Cronbach's alpha for the 11 items. The reliability test result appeared within the "acceptable" range ($\alpha = .745$).

The soundtracks played in the classrooms were later analyzed for time measurements using a sound-editing computer program called Sony Sound Forge Pro 13.0. The lengths of T-units and pauses were calculated in milliseconds. The intra-rater reliability of data collection for these timings was checked.

Data Collection Procedure

The researcher-designed questionnaire was given to every participant in intact classes immediately after a classroom listening activity was practiced. Teachers in the same classes followed the same routine and answered their questionnaire at the same time as the ELLs did.

Data regarding pausing and silence were collected from Sound Forge, each period of silence or length checked individually. Figure 1 below shows a screenshot from the program while analyzing Unit 5 Listening in Elementary 2. In the lower right-hand corner of the screen, the length of the selected section of the file is displayed as 00:00:00.206, namely 206 ms.

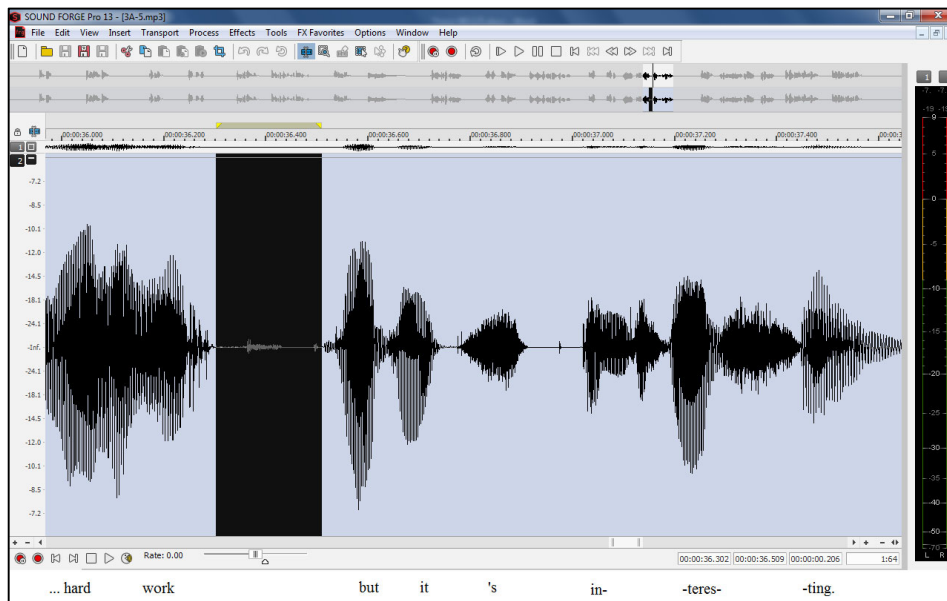


Figure 1. A screenshot from Sound Forge while analyzing a file

Note. Details show up on the main screen, e.g., the length of the selected section of the file (lower right-hand corner) is calculated as 206 ms. The words below the screen are added by the researchers for the ease of the readers. The silence period in the selected area is not complete silence, but a breathing period by the speaker.

The waveforms most often increase in altitude gradually within several milliseconds which might not be noticeable if listened to without special instruments. Therefore, this gradual amplification of voice might pose a threat to the reliability of data collection from sound analyzing computer programs, independent of the program or the supplier. Therefore, one of the tracks was reanalyzed and by the same person to calculate intra-rater reliability and Pearson's correlation was calculated as a measure of intra-rater reliability (.9998).

Data Analysis

The aural characteristics of the recording (e.g., pausing, RoS) were analyzed using a computer program, Sound Forge, in milliseconds. MLTU was calculated in words using the teachers' scripts in the Teacher's Guide for each level. MLTU was obtained using the instructions for the ILI teachers regarding the chunking of the materials. The scripts were carefully 'slash marked' to separate T-units. They were juxtaposed to the soundtracks. The audio tracks played were listed for analysis. The pauses between T-units and inside T-units were also checked and measured using Sound Forge Pro, and the values were inserted into SPSS.

Tests of normality (Kolmogorov-Smirnov and Shapiro-Wilk) and other statistical tests were performed using SPSS version 26. Nonparametric tests of correlation, Kendall's tau and Spearman's rho were used to assess correlations. According to the fact that Spearman's rho is used for both rank-order and interval data, some loss of precision is inevitable. In the case of tied values, which might alter the precision of ranking, Kendall's tau is reported to be "better able to handle" (Hatch & Lazaraton, 1991, pp. 451-453). Fredricks and Nelsen (2007) also point out minor differences between these two correlation coefficients. Consequently, both correlation coefficients were used to identify if tied values might change the results. As the coefficients and the related significance values appeared extremely similar, the present study's readers might decide to judge the results based on either one. Hypothesis Test Summaries also showed the levels of statistical meaningfulness of the variable relationships. Cronbach's alpha as the item reliability was checked for this questionnaire (.745).

Results

The results of data analysis are displayed below for descriptive and inferential analyses. The ELLs' mean age value was calculated 16.93 years of age with a standard deviation of 5.362.

Table 1 shows a summary of RoS (in ms), MLTU (in words per T-unit), and BTUP (in ms). It also displays the number of cases where ITUPs were found.

Table 1.

Summary of the Statistics for Audio Analysis

Proficiency Levels	RoS		MLTU		BTUP		ITUP
	Mean	SD	Mean	SD	Mean	SD	
B	115.0	14.89	3.15	0.45	923.4	807.53	0
EL	164.1	32.85	3.14	0.55	328.0	59.98	1
Pre	191.2	4.27	3.84	0.32	180.8	37.25	0
Int	186.1	23.44	3.81	0.17	170.5	54.68	2
Hi	170.9	6.43	4.77	0.23	452.5	83.41	0
AD	187.7	2.73	4.81	0.01	312.4	12.44	0

Note. ITUP column shows the numbers of cases found with ITUP.

The data presented in Table 1 includes the four variables under study, while they may be viewed in terms of change in each variable across the proficiency levels in the classes being studied.

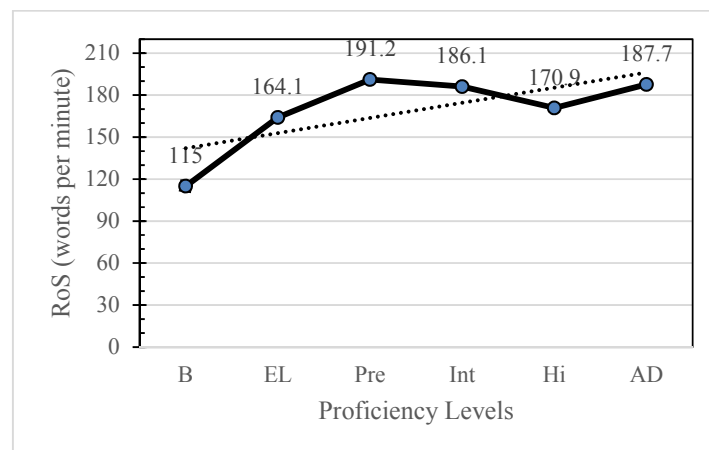


Figure 2. *RoS across proficiency levels*

It can be easily seen that RoS started at 115 words per minute (wpm) appeared to increase by 42% from Basic levels to Elementary levels on average, and by 16% from Elementary to Pre levels. RoS soared to 191.2 wpm at Pre levels and experienced a slight decrease at Intermediate levels. It reduced to 7% lower than the peak (Pre) level in high-intermediate levels which denotes a reduction in RoS within six courses after Pre levels. In Advanced levels, RoS roughly recovered the Intermediate levels, which is still lower than the highest level observed in the samples studied. Statistically, the data (the dotted line) trendline appears to be growing from a rough level of 140 wpm to about 200 wpm in general, considering the fluctuations.

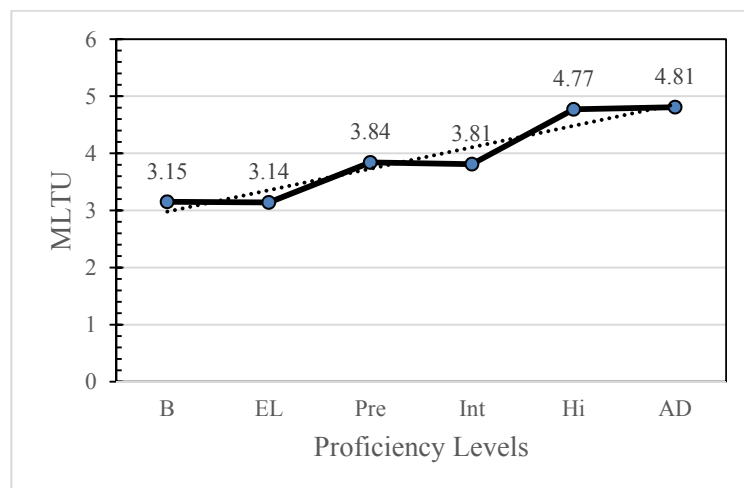


Figure 3. *MLTU across proficiency levels*

The MLTU change, as seen above, enjoys a general growth according to the trendline. However, starting at 3.15 words as the mean at Basic levels, holds almost steady in the next level, i.e. Elementary levels. It escalates by about 23% to Pre levels and remains unvaried in the next level. From Intermediate levels, there is a 25% increase and maintains the same level at Advanced levels. In spite of the increasing trendline of the variable, it shows to be kept steady for every successive pair of levels; pairs of levels, Basic and Elementary, Pre and Intermediate, High-Intermediate and Advanced expose ELLs to the same amount of MLTU throughout the courses. This implies the fact that ELLs will be exposed to the same number of words in a T-unit for 6 successive courses and will listen to texts at higher MLTUs every 18 months (in case of success in examinations).

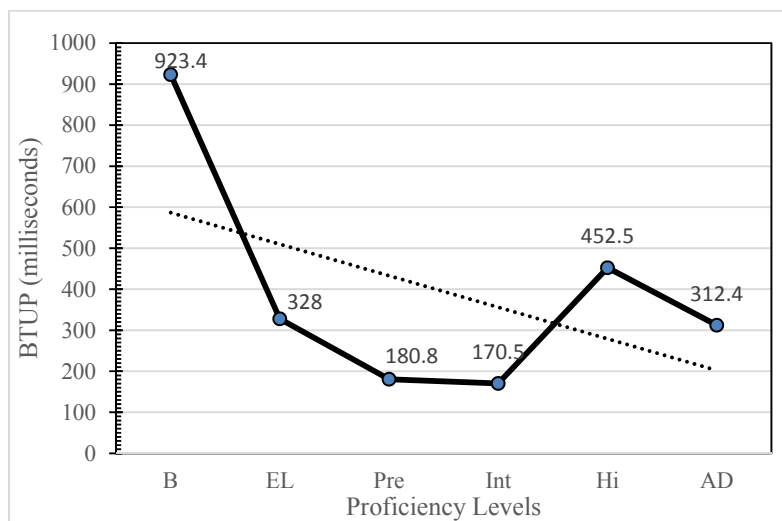


Figure 4. *BTUP across proficiency levels*

The third of the variables studied here, BTUP, appears to be very high at Basic levels at slightly shorter than one second, 923 ms as the mean for Basic levels. This denotes that in the cases observed, there are longer pauses than the mean, and a second look at the raw data reveals pauses even longer than two seconds between T-units. In Elementary levels, the amount drops to less than one-third of a second, and at Pre levels, it reaches 180 ms. This trend continues at a slower rate to reach 170 ms in Intermediate levels, which is the smallest value for BTUP throughout proficiency levels. This means that ELLs are exposed to shorter pauses as they continue from Basic to Intermediate, with smaller differences between higher levels. As ELLs enter high-intermediate levels, they will experience a sudden 265% increase in BTUP which means longer pauses. They will have shorter times between T-units in high-intermediate levels, compared to Advanced. At the ILI's final level of proficiency, they are provided with texts containing BTUPs as long as the ones in Elementary levels.

During analyzing the audio tracks, only three cases of ITUP were found which were cases of speakers' breathing, and the periods of times spent on breathing seemed not significant and, thus, irrelevant to the study, compared to over 3,000 T-units examined throughout the study. However, the perception of ITUP was present for both teachers and ELLs and was checked for correlation.

The statistical analyses of RoS and its perception across proficiency levels are summarized in Table 2 below. RoS appears in a weak positive correlation with its perception only at Basic and Intermediate levels with both Kendall's tau and Spearman's rho.

Table 2.

Results of Correlation Coefficients for RoS

RoS vs. its perception in students		B	EL	Pre	Inter	High	Ad
Kendall's tau_b	Correlation	-.182**	.027	.083	.264**	-.024	.038
	Coefficient	.007	.706	.168	.004	.835	.841
	Sig. (2-tailed)	133	128	93	76	52	22
	N						
Spearman's rho	Correlation	-.230**	.034	.109	.339**	-.031	.044
	Coefficient	.008	.704	.158	.003	.830	.847
	Sig. (2-tailed)	133	128	93	76	52	22
	N						

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

At the Intermediate level, the amount of the difference between the two test results ($\rho - \tau = .075$) is due to the difference while considering the tied data. This can be explained in terms of a slightly stronger correlation by considering the tied data. Kendall's tau shows the participants' identical views, while Spearman's rho indicates the individual participants' perceptions. This difference implies that there are a number of participants with identical views whose perceptions are closer to the reality or the audio

analyses. Correlations between MLTU and its perception across proficiency levels are depicted in Table 3.

Table 3.

Results of Correlation Coefficients for MLTU

MLTU vs. students	its perception	in B	EL	Pre	Inter	High	Ad
Kendall's tau_b	Correlation	-.104	-.121	.047	.039	.002	.315
	Coefficient	.114	.061	.427	.670	.986	.101
	Sig. (2-tailed)	133	128	93	76	52	22
	N						
Spearman's rho	Correlation	-.146	-.167*	.058	.043	-.007	.358
	Coefficient	.093	.049	.450	.714	.962	.102
	Sig. (2-tailed)	133	128	93	76	52	22
	N						

Note. *. Correlation is significant at the 0.05 level (2-tailed).

As can be seen above, at the Elementary level, the level of significance for Kendall's tau was larger than .05 and thus, it may not statistically significant, while Spearman's rho appeared within the .05 limit. Yet, it is slightly lower than .05. Kendall's tau counts identical views of the participants as one, and calculates a rank-order correlation, showing statistical insignificance. On the other hand, Spearman's rho counts identical views as enumerated accounts of data and accounts for all the *participants'* scores, rather than the types of *views* themselves, leading to a significant, but a very weak negative correlation between MLTU and its perception at Elementary levels. This is the only case in the present study in which the two correlation coefficients do not agree in the results, though the levels of significance are very close to .05. Except for the aforementioned item, conformity is seen between the two correlation coefficients.

Table 4 shows that MLTU is in weak negative correlation with its perception at Elementary and Pre-Intermediate levels, with the two coefficients in agreement. The correlations showed statistically insignificant at other levels of proficiency.

Table 4.

Results of Correlation Coefficients for BTUP

BTUP vs. students	its perception	in B	EL	Pre	Inter	High	Ad
Kendall's tau_b	Correlation	-.051	-.142*	-.127*	-.096	.192	.058
	Coefficient	.445	.041	.032	.291	.091	.763
	Sig. (2-tailed)	133	128	93	76	52	22
	N						
Spearman's rho	Correlation	-.070	-.180*	-.167*	-.130	.248	.066
	Coefficient	.422	.042	.030	.262	.076	.771
	Sig. (2-tailed)	133	128	93	76	52	22
	N						

Note. *. Correlation is significant at the 0.05 level (2-tailed).

Mann-Whitney U-Tests hypothesis test results displayed statistical equality of MLTU and its perception, while equality was rejected for RoS and BTUP and their perceptions. Thus, ELLs showed statistically equal factual MLTU values and their perception.

Mann-Whitney U-Tests hypothesis test results performed on teachers' and ELLs' perceptions of the variables under study indicated the equality of perceptions of RoS and BTUP. Therefore, teachers and ELLs demonstrated similar views toward the variables. However, their perceptions of MLTU did not match.

Discussion

The purpose of the present study was to determine what relationships, if any, there exists among RoS, MLTU, BTUP, ITUP, and their respective perceptions within ILI English classes, among students and teachers, and if and how proficiency level might affect them.

The study revealed the existence of a very weak negative correlation for Basic levels and a slightly weak positive correlation for Intermediate levels. It can be concluded that since the correlations may not be strong enough to enable any speculations over the course of the 18-term study at the ILI, the students may not develop awareness and attention towards the actual characteristics of the aural input they are exposed to. The ELL perception's mismatch with real data posits that they evaluate their input wrongly and since there was no pattern or trend line in the results, the mismatch is spread over all the proficiency levels. Thus, no clear, significant relationship was found between RoS and its perception as for research question one.

This is in contrast with some of the similar studies conducted so far. For example, Hayati (2010) and Griffith (1990; 1992) suggested that lower-level students comprehend listening activities at lower amounts of RoS. Yet, the present study revealed that students do not perceive RoS correctly. This might be a byproduct of the materials design at the ILI, not leading the students to develop appropriate ideas of RoS. Henceforth, the results of our study administered on ILI listening comprehension appear contradictory to most of those of the previous studies administered, like Adams and Moore (2009).

Another reason behind the results above might lie in the lack of awareness. ELLs may not know that the RoS is different at proficiency levels, or may not be aware of their increasing listening comprehension RoS, which in turn, can be a very useful commercial issue (for the ILI to attract the students' attention to the characteristics of audio tracks) in textbook design

and help improve learner motivation. ELLs' awareness of the speed should also be reconsidered throughout ILI textbooks to be designed. In this way, learners may apply the view they develop to all real-world listening activities they listen to outside the ILI classroom.

With regard to research question 2, a Lack of statistical correlation denotes a lack of the existence of a relationship between MLTU and its perception through ILI proficiency levels. As previously shown, MLTU increases across proficiency levels, and learners are continually exposed to longer T-units in listening activities. However, the results inform the readers that ELLs may not notice or be aware of the changes in MLTU. Exposure to longer phrases should also be noticed by ELLs via various means, such as exposure to fluctuating MLTUs in listening activities during each course, etc. Previous studies, such as Shokouhi and Mirsalari (2010), emphasize collocational knowledge as an aspect of text segmentation, leading the ELLs to use longer T-units by joining lexical items and using the combination one unit. As Tang (2013) suggested, chunking the input will benefit language learning, especially in terms of listening comprehension.

The increase in the ELL's cognitive capacities of speech processing seems to be passed by unrecognized by ELLs themselves. Thus, familiarizing them with this might enhance the institute's publicity and add to ELLs' intrinsic motivation.

The answer to RQ3 is twofold. First, the weak negative correlation between BTUP and its perception at Elementary and Pre-Intermediate levels and lack of correlations at the remaining levels takes the opportunity of making a trendline for the improvement of BTUP. Therefore, ELLs cannot recognize if the pauses they hear are proportional to their proficiency levels. It can also be concluded that while they are exposed to pauses, the input is being processed, and as a result, the ELLs may fail to notice the pauses as they

are processing the message they have just listened to. This might not be undesirable, as the ELLs might be able to process the speech within the time limits that coursebook developers have considered necessary for the courses. Although researchers, such as Oliveira (2002), pinpointed that pauses were important narrative devices, our data showed that ILI students were not aware of them, while Banýrová (2019) ignored the importance of RoS and pausing.

The second part of RQ3, the real ITUP, did not meaningfully exist in the corpus studied. The ELLs' perceptions of ITUP cannot be statistically juxtaposed to the factual data as there were only a few items present. The course books and teachers may need to emphasize pauses' existence to raise awareness in students, direct their attention to the length of pauses understanding the message more quickly.

The relationship between teachers' perceptions of the variables and the ELLs' leads us to the conclusion that the teachers' perception of RoS and ELLs' perception of the same variable moderately correlate with each other and their perceptions of BTUP weakly correlates, while there is no agreement on the two remaining variables.

Results of the study of the collected data for Research Question 4 demonstrate that the ELLs' and the teachers' perceptions of RoS moderately correlate with each other (.786) and the perceptions of BTUP weakly correlate ($\approx .5$), while there is no significant agreement on the two remaining variables under study. This suggests that their agreement on the perception of RoS is moderately noticeable, but they do not generally agree on BTUP, MLTU, or ITUP. In line with Sagai et al. (2007), longer or shorter pauses did not lead to different perceptions of comprehension, while Masalimova et al. (2016) emphasized the importance of improving perception mechanisms in order to elevate language learning through listening comprehension.

Research Question 5 seeks to discover if a relationship could be found between the perceived variables and the students' proficiency levels. To answer RQ5, it can be seen that the proficiency level did not anticipate any of the variables under study. Studies such as Banýrová (2019) and Hayati (2010) related to the variables' success and importance to the students' proficiency levels. Although Chang (2013) concluded that slower speech enhances comprehension in lower-proficiency students by improving listeners' bottom-up processing skills, little effect was found on the relationships of the ILI variables and proficiency level.

Conclusion

The present study revealed no or little correlations between the characteristics of the listening tracks used in Listening sections of the textbooks under study and their perceptions, while the learners' and the teachers' perceptions of the RoS and BTUP appeared to agree.

The present study results might come useful to textbook designers of the Iran Language Institute, who are currently in the process of updating the textbooks. Thus, they may need to develop tasks and activities more carefully and take into account the user-friendliness of the listening materials. Teacher training courses may also be needed to provide the ILI teachers with more to-the-point and efficient consciousness-raising methods toward the listening materials.

Last, but not least, is the fact that in spite of the highly successful ELLs graduating from the ILI, improvement in listening activities will most possibly, and hopefully, lead to higher financial gain for the institute. Noticing that the world of applied linguistics and language teaching is undertaking rapid change and improvement, changes in teaching methodologies and course books seem greatly needed.

Limitations to this analytic single-shot research study included access to all ELLs at the ILI, a wider time span to study the ELLs' possible maturation and the materials both during each course and during the whole series of courses at the institute.

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