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# THE SPEECH RATE AND VOCABULARY PROFILE OF TED-ED VIDEOS AS EXTENSIVE LISTENING MATERIALS FOR EFL LEARNERS

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## Abstract
Listening proficiency is essential in language acquisition, yet both its classroom time and research are overshadowed by other skills, such as speaking and reading. To tackle the issue of limited classroom time, extensive listening is one of the most convenient and effective solutions. Selecting the materials, however, needs an equally extensive effort; especially for the authentic ones. Therefore, this study aims to investigate the speech rate and vocabulary level of TED-Ed videos as one of the sources of authentic material for extensive listening to determine their suitability for EFL learners. The research used a quantitative descriptive design with purposive sampling. The data collection of Speech Rate is conducted by transcribing the sample videos and dividing the number of words by the length of the video, and the result is measured in terms of WPM (Word Per Minute). To get the vocabulary level, the video transcripts are put into the *Vocabkitchen* website to analyze the vocabulary CEFR level for each word. From the analysis, the average speech rate of TED-Ed videos is 147.4 WPM and it is suitable for all levels of EFL learners, including beginner level. Meanwhile, the CEFR level of the vocabulary is more suitable for intermediate EFL learners and beyond.

**Keywords:** EFL learners, extensive listening, TED-Ed, vocabulary level, voice speed

## Introduction
Acquiring a language involves the activity of being able to understand the target language as an input and being able to produce an output in the target language. In acquiring a language, listening is taking a huge part. Apart from being a medium to understand language inputs, listening activities for language learners also act as a model to produce the target language correctly and appropriately (Renandya, 2016). The importance of listening as a means to learn a language is further highlighted in the emergence of the Comprehension Approach and Natural Approach. These approaches regard listening comprehension as a necessity before one can produce a language orally (Maftoon et al, 2016). Furthermore, listening is seen as mimicking or reflecting first language acquisition in a natural order (Holden, 2008). Therefore, language fluency would never be reached without listening proficiency. Despite its necessity in language acquisition, developing listening proficiency is not as easy as a walk in the park. It is a



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well-known fact that the development of listening proficiency needs extra effort and time. Moreover, understanding intended meanings requires correctly assigning meaning to sounds; understanding supra-segmental elements such as stress, rhythm, and intonation; and using background, situational, and linguistic knowledge (Holden III, 2008). Recognizing the challenges in developing listening proficiency, Renandya and Farrel (2011) suggested that educators need to actively find the features that make spoken text particularly difficult to comprehend for students with a lower proficiency level. They came up with four major problems for beginner students, which are the speech rate or voice speed, the variety of word pronunciations when they are linked together in a sentence, the blurry boundaries of each word, and the inability to go back to particular misheard words during the listening process. These findings, as a result, provided proof of the consensus among researchers and language educators that to effectively improve listening proficiency, it has to be accompanied by a meticulous material selection.

While selecting suitable listening materials, they can be divided further into Authentic and Graded materials. Several studies have proven that students exposed to authentic materials perform better than those exposed to graded materials (Sabet & Mahsefat, 2012; Lauwereyns, 2016). Authentic materials can be described as the materials that are in use in real-life transactions without being simplified. Ahmed (2017) added that authentic materials imply that language is acquired not by planned assimilation but through the learners' effort to use whatever communicative resources are available to make meaning. In other words, authentic materials are materials that are made mainly for native speakers, for whatever reasons, but never solely or specifically for the reason of being a language learning tool. In selecting suitable materials for language acquisition, which is not limited to listening materials, researchers and educators need to fulfill several basic principles. Tomlinson (2011, p. 7) stated six principles in his book Materials Development for Language Teaching. The first principle is that the language input has to be rich, meaningful, and comprehensible. The materials also need to be engaging both effectively and cognitively. Apart from that, the materials need to positively affect the learners so that they are more likely to achieve communicative competence. Tomlinson also stated that the language materials need to enable learners to use those mental resources that they typically utilize when acquiring and using their L1. Afterward, the materials need to cover the most principal features of the target language so that the learners can discover how these features are used; and finally, the materials need to encourage opportunities for learners to use the target language. The fulfillment of these principles would result in a remarkable material in acquiring a language.

There are plenty of criteria that can be derived from those six principles; however, this research is going to focus on the voice speed and vocabulary level of the materials. Judging from the first principle, listening materials can only be rich, meaningful, and comprehensible if they contain understandable levels of vocabulary based on the learners' CEFR level, and they are spoken at a suitable speed. When the materials are comprehensible, then they can be judged by the second criterion, where materials cannot be affectively and cognitively engaging unless they are comprehensible. Afterward, to positively affect learners, we can also confidently assume that the voice speed and vocabulary level need to be at a suitable rate. This is in line with the fourth principle as well, where learners can only acquire the target language just like they acquired their first language only when the materials are "easy enough", which can be defined by their voice speed and vocabulary use. Next, in the fifth principle, it is stated that the materials need to cover the most important features of the target language, which are included in the

most commonly used vocabulary. Finally, for the sixth principle, it is also logical that materials with an adequate voice speed and a relatively easy vocabulary level will be able to encourage learners to practice the language; for example, repeating the pronunciation of the words they hear, or producing sentences in the similar forms as the materials. The concordance between the principles of selecting suitable materials and the importance of voice speed and vocabulary levels, as such, highlights the necessity of evaluating these features in listening materials.

Having known the principles of selecting good listening materials while highlighting the importance of voice speed and vocabulary level, the issue is to expose learners to the materials as much as possible to enhance their proficiency. Since listening time in English lessons is restricted, extensive listening appears to be a viable option for increasing students' exposure to spoken English; and thus, enhancing students' English proficiency (Saputra & Fatimah, 2018; Chang et al, 2019; Masrai, 2020; Barella & Linarsih, 2020). Extensive Listening is described as a prolonged activity that exposes students to a large quantity of understandable and interesting materials from various sources (Ivone & Renandya, 2019; Chang et al., 2019). This definition is in line with the earlier description from Alm (2013) which stated how Extensive Listening focuses on variety, frequency, and repetition to help students in reaching fluency. In short, extensive listening is a beneficial tool for language learners, as they are listening to a substantial amount of varied interesting materials over a long period; also, with plenty of repetition for vocabulary retention.

Despite its definition, Extensive Listening is not limited to just listening. When the materials are beyond the language learners' level, they have to be accompanied by textual or visual aids to make the materials more comprehensible (Ivone & Renandya, 2019). When accompanied by other inputs, that is when the Extensive Listening becomes Extensive Listening and Viewing; or even Extensive Listening, Viewing, and Reading. Bayne (2019) considered that listening while watching is a more natural condition for language learning, given that the visual complements the audio. He argued that two or more sources of information (audio and visual) will make decoding meanings more difficult unless both of them are working together to convey one information at a time. Moreover, Vo (2013) underlined the importance of interesting materials, as students usually do extensive listening for pleasure. Seeing these statements and findings, videos seem to be more appropriate as a learning source compared to audio-to-be listening materials.

Although Extensive Listening has a myriad of benefits, just like any other learning method, it is not flawless. In the 2019 research conducted by Iswahyuni and Gozali, the students were satisfied with the freedom and flexibility of choosing their materials in line with their interests. The students stated that they have no problems finding extensive listening materials, but 68% of them stated that they often have difficulties understanding the materials, and 88% of them stated that they listened to/viewed the materials a lot of times. This finding showed that there is a gap between students' English proficiency and the complexity of the materials. Thus, among the billions of videos readily available through the internet, finding the "perfect" material for Extensive Listening seems to be a daunting task. The internet is extremely helpful for the implementation of extensive listening-viewing activities. There are countless listening materials in English available just several clicks away. Unlimited listening resources can be grabbed with just one hand, literally. However, the vast array of resources, although essentially accessible, does not make it easier for students to choose suitable materials for themselves. Moreover, they

might not have sufficient knowledge regarding the things that need to be considered before choosing an extensive listening resource.

Based on the principles of selecting suitable materials that have been stated above, and the flexibility of its use, TED-Ed is one of the potential resources to be good extensive listening materials for EFL learners. It is one of the educational channels on YouTube which presents videos about various types of topics and interests. TED-Ed is one of the branches of TED (Technology, Entertainment, and Design), a non-profit organization that focuses on education, whose aim is to help create a future worth pursuing for all (TED, 2020). At the time of this research, TED-Ed has more than 2000 educational videos and has almost 2 million subscribers, which proves the wide range of materials they provide. Unlike TED's more famous content in TED-Talk, which is served in a longer seminar-like format, TED-Ed content is mostly served as short animated videos, which make them easier to understand in account for the graphic aids. It is believed that learners can pick up new vocabulary as they listen to stories. This is called incidental vocabulary learning from extensive listening – an effective way of acquiring vocabulary from context (Vo, 2013). The suitability of TED-Ed videos as Extensive Listening materials for EFL learners will then be evaluated in this research.

In the current atmosphere of language learning, based on the theories and studies that we explored above, we can gather several issues in improving the listening proficiency of EFL students. Firstly, acquiring listening proficiency in the target language requires a meticulous selection of suitable materials. Secondly, those materials would be better if they were in the form of authentic materials as opposed to graded or simplified ones to replicate the real use of the language. Even so, language educators need to ensure that the authentic materials are not too difficult so that the students can comfortably and effectively refine their listening skills, which leads us to note the importance of voice speed and vocabulary level of the listening materials. Furthermore, the issue of the time restriction in English classes has presented the necessity of learning outside the classroom in the form of extensive listening. We have also explored that the internet is the easiest place to gain a myriad of extensive listening; and yet, linking back to the first issue, selecting suitable materials from the internet is still an issue. Nevertheless, despite all of those issues, the researchers feel that there is still insufficient research on the matter, and further material evaluations need to be conducted.

Considering all of these issues, TED-ed is one of the resources that have the potential to be considered as a suitable material. Therefore, this study aims to calculate the voice speed and vocabulary level of TED-Ed as one of the sources of authentic material for Extensive Listening to determine which levels of EFL learners can use them best. This research provides benefits for the people involved in EFL. Firstly, the results of the study can give some insights to EFL Teachers in choosing authentic extensive listening and viewing materials that are suitable for their students. The media analysis in this study can also be adapted for teachers' material evaluation. Secondly, this study can be used as a reference for future researchers to develop a learning strategy using authentic materials for EFL students. Apart from that, future researchers can use this research as a base to find out whether using authentic listening and viewing materials is effective for EFL students.

## Method

The study uses a quantitative descriptive design regarding listening and viewing material evaluation. This research design is used to describe the conditions of TED-ED

videos as authentic materials for extensive listening and viewing. Quantitative descriptive design is a research design that focuses on the numerical aspect of the studied object. This study uses a systematic observation that aims to explain the conditions of the subject matter by numerical records. Among the advantages of using this research design is objectivity, as the researchers are only describing the real physical conditions of the research objects; wide coverage of data collection; and the various customization as data collection can be done in numerous options of method (Mbuva, 2023).

The research objects are the videos of TED-Ed, which have the potential to be a good resource for extensive listening because of several reasons. First of all, this YouTube channel which has been standing since 2011 already has more than 1500 videos ranging from a lot of topics and themes; such as Greek Mythology, Geography, Sociology, Linguistics, and many other things. The vast array of videos will be interesting for language learners to choose from. Apart from the vast range of topics, TED-Ed's videos are quite short and compact, usually about 3 to 5 minutes short. This length makes the videos much easier to understand. The short length of the videos is also supported by the availability of subtitles or closed captions (cc) and transcripts. Therefore, it is easier for language learners to understand the topic better. Furthermore, the illustrations on the videos are always relevant and interesting to explain the context and topic of the videos. However, despite their relatively good quality, these materials need to be further evaluated to find out whether or not they are appropriate or suitable to be used in terms of their voice speed and the CEFR level of the vocabulary.

This research uses purposive sampling so that the researchers can gain more in-depth and inclusive knowledge. From the population of around 1,500 videos, the researchers chose 100 videos as the sample. The videos were selected using two criteria, namely their type of format and themes. Firstly, the researchers transcribed all of the sample videos. Afterward, to describe their voice speed, the researchers counted the number of words per video and then divided them by the length of the videos. That way, the researchers were able to describe the voice speed in WPM (words per minute). To gain a more accurate voice speed, every length of the video is reduced by thirty seconds to accommodate the introduction and the closing of the video, which have no spoken words on them.

Before conducting the study, the researchers observed the study objects of TED-Ed videos more closely and obtained significant information regarding the categorization of data collection. Firstly, it was discovered that TED-Ed has 4 video formats. Of their older videos, some of them resemble the shorter version of TED-Talk, which means they were formatted similarly to a seminar or a speech. However, this type of video format is getting rarer in the new videos of TED-Ed. Thus, this type of video is only making up a total of 2.7% of the total videos. The other video type that makes up the rest of the video archive is the animated video format. However, this type of video can be further divided into three categories based on their content. The first one is a riddle, which makes up for 4.6% of the total videos. The second one is poem, which only makes up for 0.8% of the total of the videos; and the last one is animation, which makes up the majority of the total videos, which is 91.5%. Therefore, we can say that TED-Ed has 4 video formats, and the majority of them are exposition-animated videos, that serve an exposition text that is dubbed and accompanied by animations and music. The video format becomes one of the variables of selecting sample videos used in purposive sampling.

Apart from video format, video theme, and video length were initially considered to be one of the variables in sample selection. However, video themes are too ambiguous

to be used as one of the variables as the majority of the videos can fit into a bunch of categories of themes, as provided by TED's website. For example, the video entitled "Why do people get so anxious about maths?" is categorized into three themes by TED's website, which are Mathematics, Teaching and Learning, and Psychology. The overlap of themes made the videos hard to pick apart. For video length, it turns out that all of the videos on TED-Ed, regardless of their type and themes, are under 12 minutes in length, and only a very small percentage of them (9%) are above 10 minutes in length. Thus, this research was conducted without the division of either video theme or video length.

Secondly, after answering the first research question, the researchers then determined the vocabulary level, which is the second research problem. To assess the vocabulary level, the researchers used the *Vocabkitchen* word profiler which is by CEFR level. *Vocabkitchen* is a tool profiler that is based on the EVP database from Cambridge University. The English Vocabulary Profile is based on extensive research using the Cambridge Learner Corpus (CLC). This is a collection of several hundred thousand examination scripts written by learners from all over the world that are added to every year. Combined with solid evidence of use in many other sources related to general English, such as examination vocabulary lists, classroom materials, and a wide range of course books, the CLC confirms what learners can and cannot do at each level of the Common European Framework (Cambridge, 2015). Thus, even though not all words are compiled in the corpus, we can be rest assured of its reliability. Thus, in the end, the researchers can accurately assess the suitability of TED-Ed videos to the CEFR level of EFL students based on their vocabulary profile.

The data analysis in this study is conducted using basic statistical techniques. The Speech Rate is counted in WPM (Words per Minute), while the Vocabulary Level is computed in percentages (%) divided into six CEFR levels (A1-C2). Afterwards, the average is calculated and the highlight of the data is presented as a description.

## Findings and Discussion

The findings and discussion are presented in two sub-chapters. The first one is going to focus on the Voice Speed aspect of the study, while the second sub-chapter is going to be reserved only for the Vocabulary level. After analyzing a total of 100 sample videos from the TED-Ed YouTube channel, the researchers gained sufficient data regarding the average voice speed from the samples. Based on the percentages of the video formats or types, the samples are divided into 3 Talks, 5 Riddles, 1 Poem, and 91 Animations. The number of videos from each format is representative of the percentage of each format in the population.

### *The speech rate of TED-Ed videos*

The voice speed or speech rate of each video is calculated by counting the total amount of words from the transcription of each video, divided by the length of the videos. However, the length of the videos is always reduced by 30 seconds to account for the intro and outro of the videos where no words are being said. The compiled result of the analysis of speech rate is shown below.

Table 1. The average speech rate of TED-Ed videos

| Video Format | Voice Speed (WPM) |
|---|---|
| Talk | 194.3 |
| Riddle | 156.4 |
| Poem | 81.6 |
| Animation | 157.2 |
| Average | 147.4 |

The data in Table 1 shows quite a difference among each format, particularly between the Talk video format (194.3 WPM) and the Poem video format (81.6 WPM). Meanwhile, the voice speed of Riddle videos and Animation videos are quite similar, which are 156.4 WPM and 157.2 WPM respectively. Based on the compiled data, the fastest voice speed is in Talk video format, and it is no surprise because, among all the video formats, only Talk videos are done spontaneously, without a detailed script. The Talk video format is arguably the most authentic type because it is a recording of a person standing in front of an audience, delivering a speech, or a lecture. Meanwhile, the other formats are recordings of a speaker who reads through a script. Therefore, although this type of video is the most authentic among the other formats, the talk videos are also the most difficult to understand, especially for beginner EFL learners. Beginner EFL learners would have an easier time understanding the poem-type videos, as this format's voice speed is starkly slower than any other format.

***The vocabulary level of TED-Ed videos***

The samples used to calculate the vocabulary level of TED-Ed videos are the same as a hundred videos used for checking speech rate. The video transcripts were put into *Vocabkitchen* to find out the variance of their vocabulary profile. In the table below, we have the division of vocabulary levels based on CEFR levels, ranging from A1 (Beginner) up to C2 (advanced).

Table 2. The average vocabulary level of TED-Ed videos

| | Vocab Level (%) | | | | | | |
|---|---|---|---|---|---|---|---|
| | **A1** | **A2** | **B1** | **B2** | **C1** | **C2** | **off-list** |
| Talk | 73.7 | 10.7 | 6.0 | 3.3 | 0.7 | 0.3 | 5.3 |
| Riddle | 67.0 | 12.0 | 7.2 | 4.0 | 1.2 | 0.6 | 8.0 |
| Poem | 72.0 | 15.0 | 4.0 | 3.0 | 1.0 | 0.0 | 5.0 |
| Animation | 56.2 | 11.7 | 9.8 | 8.0 | 2.1 | 1.5 | 10.6 |
| Average | **67.2** | **12.3** | **6.8** | **4.6** | **1.2** | **0.6** | **7.2** |

The data shows that across the board, the majority of vocabulary used in TED-Ed videos is at the beginner level (A1 67.2 %). The second highest vocabulary level is the upper beginner level (A2 12.3 %), while the other 4 levels only amount to 13.2 % of all the vocabulary (B1 6.8%, B2 4.6%, C1 1.2%, and C2 0.2%). However, 7.2 % of the vocabularies were off-list as they cannot be found in the corpus of Cambridge EVP. These 7.2 % of words are ranging from numbers, and people's names, to words in other languages. However, some of the words in the off-list are regular English words that are unavailable in the corpus.

Although the average percentage of the off-list words is not significantly high, it can be pretty high in some particular videos. For some videos, usually the ones that talk about other cultures or other languages instead of English, the percentage of off-list words can be more than 20%. For instance, a video titled "A Brief History of Spanish" is the video with the highest percentage of off-list words, which is 22%. Meanwhile, another video entitled "The Norse Myth that inspired The Lord of the Rings" has 21% of off-list words. However, because of the topic, the off-list words can still be understood by beginner EFL Learners as long as they listen closely to the context, and the vocabularies around the off-list words.




Figure 1. A part of the CEFR vocabulary profile from "the brief history of Spanish" transcript

The figure above illustrates the vocabulary profile in the form of text (instead of percentages). On the word profiler, the A1 words are written in light blue, the A2 words are written in light green, and there is one C1 word written in magenta. Meanwhile, the grey-colored words are marked as off-list. From the figure, on the left box, we can see the off-list words (the grey-colored words) used in the sentences. In a context like the sentence above, EFL learners do not need to understand the off-list words to comprehend the sentence in general. Even native speakers might not know the meaning of those words either, as they are not English words. Thus, this case proves that the off-list words, even though they exist in a high percentage in some videos, will not always disturb the comprehension of the learners.

***Discussion***

After analyzing the numerical results of the speech rate and vocabulary level of TED-Ed videos, one more question remains. Are TED-Ed videos suitable as authentic extensive listening materials for EFL learners across all CEFR levels? Firstly, we are going to discuss the Speech Rate of TED-Ed videos. Even though it is a common belief among EFL researchers and educators that the slower the speech rate, the more understandable the speech; we have not discussed the most efficient speech rate to which EFL learners would comfortably listen. According to a Japanese study that aims to discover the effects of speech rate and background noise on EFL learners, students have the best comprehension in the slowest speech rate (Fujita, 2007). However, the study did not mention the WPM rate of the audio used.

Another study in 2007 found that faster speech lowers comprehension for both native and non-native speakers, without any significant difference in results (Jones et al., 2007). Nonetheless, the non-native participants in the study were all described as bilinguals, so it can be assumed that they mostly have an advanced level of English. In 2010, another study involving 108 Iranian EFL Learners found that both slower and natural speech rates can improve students' English comprehension, but the natural speed would be better (Hayati, 02010). However, in that study, it was only said that the natural speech rate would be better at improving the students' comprehension, which does not mean it was better understood by the students. The statement was based on the finding that students who were exposed to natural speech rate audios for a certain amount of time performed better in a listening post-test compared to those who were exposed to audios with a slower speech rate.

A study involving a large number of voluntary participants was conducted in 2018 to discover how to save people's time in listening by creating faster synthetic audio. The study found that although the normal voice rate for English speakers is around 120-180 WPM, most people can understand much faster; around 309 WPM (Bragg et al., 2018). However, this finding is reserved for native speakers, as all of the participants of the study are native English speakers. Although there is no other study that talks about the maximum comprehensible speech rate for beginner EFL students, we can assume that the normal speech rate (120-180 WPM) is a safe rate for comprehension, as the natives and advanced learners can comprehend a much faster speech rate.

Based on those previous studies, it is concluded that TED-Ed videos, which have an average speech rate of 147 WPM, are suitable for EFL Learners. This is because the average speech rate is still within the normal rate of naturally spoken English (120-180 WPM). An exception needs to be made for the talk-type videos, as their speech rate is slightly faster than normal (194.3 WPM), but as the previous study suggests, it is still lower than the maximum speech rate that can be understood by most people (309 WPM). A slightly lower speech rate would possibly be more comprehensible for beginners, but it can be confidently said that TED-Ed videos will not be considered too fast by beginner EFL learners.

Similar to the current study that suggests the suitability of TED-Ed videos for EFL learners at every CEFR level, Wingrove (2017) suggested that the speech rate of TED-Talks is suitable for EFL learners. Although Wingrove (2017) used TED Talks as his research object, the result of his study is still comparable to the result of the current study. His result is especially comparable to the average speech rate of the Talks-type videos of TED-Ed. Unlike the other types of videos on TED-Ed, this type of video is presented in a seminar or speech-like format, making it indistinguishable from TED-Talks. Wingrove (2017) found that the mean speech rate of TED Talks was 160 WPM, which is slightly different from the talk-type videos' mean score of 194 WPM. Although the number is stated as faster than Yale's collections of lectures, it is still considered at the normal and comprehensible level in WPM. In addition, Anggraeni and Indriani (2018) found that teachers perceive the videos to be quite fast, but they are still at the natural speed. The teachers also added that the fast speech rate is quite challenging for their students, but it will enhance their listening proficiency. Overall, the teachers who participated in the study have a positive perception towards the use of TED-Ed videos as listening materials in the classroom in several different aspects as well.

After clearing the discussion on Speech Rate, Vocabulary Level can be discussed next; as it is necessary to determine whether or not the vocabulary level is suitable for

beginner EFL Learners. It is positive that the average percentage of A1-levelled words across the board is quite prominent, 67.2%; yet is it enough to make the videos comfortable to comprehend for beginner EFL Learners? In 2011, a study involving 661 participants from 8 countries revealed that there is a relatively linear relationship between the percentage of vocabulary known and the degree of reading comprehension. The study suggests that 98% is a reasonable lexical coverage target for readers of academic texts (Schmitt et al., 2011). Two years later, Schmitt reflected on the study with Van Zeeland and they found that the lexical coverage of reading and listening activity is quite similar. A learner needs to be familiar with around 95 percent of a spoken text to adequately comprehend it (Van Zeeland & Schmitt, 2013). Thus, based on the findings and previous studies regarding the lexical coverage to comprehend a spoken text, the videos on TED-Ed are more suitable for intermediate EFL learners. The reason is that intermediate learners are expected to understand the words that have CEFR levels between A1 and B2.

Apart from all the discussion of CEFR levels, the use of TED-Ed videos as authentic materials has been scrutinized in several research. For instance, Sanjmyatav and Sumiya (2020) investigated the perception of accounting students regarding the use of TED-Ed as authentic EFL materials. The most notable finding from the research is that 100% of the respondents stated that they need TED-ED as a material source to enhance their English proficiency. From the discussion with the participants, it was found that the necessity of TED-Ed is based on the huge variety of topics that are presented with descriptive animations in their videos. Apart from that, a high percentage of students agreed that TED-Ed is easily comprehensible, especially with the addition of subtitles. These findings can be strengthened by the findings of this study in a way that TED-Ed is suitable to be used in EAP (English for Academic Purposes) settings, as illustrated by the speech rate and vocabulary data.

Another research conducted by Wulan (2021) has a similar result regarding the suitability of TED-Ed videos as authentic materials. Her research showed that the implementation of TED-Ed videos for students in a vocational high school in Indonesia has significantly increased their listening scores. This is in line with the result of the current study regarding the suitability of TED-Ed for every level of EFL learners. Moreover, Wulan (2021) also highlighted that the study was conducted without the use of subtitles, which in turn proves the high comprehensibility of TED-Ed videos. Although the aforementioned study did not focus on the vocabulary level or the speech rate of TED-Ed videos, the mentioned low-level proficiency of the study's participants further proves the suitability of TED-Ed videos for beginner-level students. While Wulan's study (2021) was conducted in a vocational high school setting, a study by Hariyani (2022) which was conducted in a secondary school also yielded a similar result. In the questionnaire part of the study, twelve of the students stated that they could understand TED-Ed videos easily because of the concise explanation and comprehensible vocabulary, but 6 students stated that the videos were too fast. However, all of the participants stated that the videos were suitable to be learning materials for them.

All in all, the research findings are almost in line with all the findings of the previous studies. Although the aforementioned studies did not necessarily focus on the same aspects (speech rate and vocabulary level), they all agreed with the statement that TED-Ed is suitable to be used in various settings and various levels of EFL learners. All of the studies agree that the speech rate is slightly fast, but it does not disrupt students' comprehension of the topics. Furthermore, none of the studies stated that the vocabulary level is too advanced, but it does not mean that the participants can understand every

single bit of the words uttered in the videos. In addition, from the previous studies, it is found that the illustrations and subtitles of the videos are quite helpful in enhancing students' comprehension.

## Conclusion

From the findings and discussion, we discovered that TED-Ed videos are suitable for beginner EFL students based on their Speech Rate, but unsuitable based on their CEFR Vocabulary Profile. However, this does not mean that TED-Ed videos cannot be used for beginner EFL students at all. The videos on TED-Ed are produced in such a high quality that they can still be used for beginner students if they are accompanied by vocabulary guidance from teachers. Some follow-up questions for the content of the videos can also help to make sure the students understand what they have watched or listened to. Apart from that, we should also consider the fact that TED-Ed videos are already accompanied by animations and closed captions or subtitles that have been proven to be helpful for the comprehension of language learners. Furthermore, as authentic materials for extensive listening, TED-Ed videos can still be studied in various lights. Many factors can affect listening comprehension and the improvement of listening skills, and each of the factors deserves in-depth studies. Other than that, the authenticity of the videos themselves can be researched further. Besides, the use of authentic materials is not limited to extensive listening; thus, future studies may focus on the experiments of integrating TED-Ed videos in the classroom.

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