MASTERING LISTENING COMPREHENSION AT ESP CLASSES USING TED TALKS

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The paper demonstrates the results of the experimental research conducted during the first semester of the academic year 2020/21, including the remote learning period due to the Covid19 pandemic situation, at the lessons of English for Specific Purposes (ESP) (with students of Specialties 208 "Agrarian Engineering" and 141 "Electrical Engineering and Energy") at the State Agrarian and Engineering University in Podilia, Kamianets-Podilskyi, Ukraine. The research basically analyses how TED (Technology, Entertainment, and Design) Talks impact university students' listening comprehension and speaking skills. Online study support for ESP was personally created by the educators as a four-credit course due to ECTS in the Moodle Learning Management System (LMS) with the application of TED Talks, which was used for study purposes on the B1 level. The research sample is represented by 50 students majoring in Agrarian Engineering and 50 students majoring in Electrical Engineering and Energy, all of them enrolled in the mandatory subject of ESP. The subjects (students) were divided into the experimental and control groups. At the beginning of the course, the students wrote the pre-test, for their start level to be evaluated, and at the end of the semester - the post-test was done to check the achievements and probable benefits of TED Talks. The experiment results demonstrated the improvement of both groups while it was proved statistically that the experimental group showed better outcomes both in listening comprehension and speaking skills respectively. The questionnaires, distributed among the students, consisted of 5 questions, where they expressed their personal opinions about the e-learning process, and according to which the TED Talks influence on their listening and speaking skills was evaluated. The feedback of the questionnaires proved that the students mostly had a positive attitude concerning engaging TED Talks into the learning process, especially those who were involved in the experiment.

Keywords: EFL; ESP; TED Talks; e-learning; experiment; questionnaire; engineering students.

Introduction

One of the main goals for a good educator today is the ability to integrate technology, creativity, and interesting content in the classroom. It can be challenging for a lower-budget education institution to combine these elements within the classroom. It may be also problematic nowadays in the conditions of global pandemic situation and completely remote or blended learning process. Otherwise, digitalisation today opens a lot of possibilities for teachers all over the world. Lately, the propagation of web technologies becomes a modern trend in English as a foreign language (EFL) teaching and learning. Similarly, various sources and a number of media technologies are used to go along with educational means and methods. Nevertheless, only a few educators make an effort to integrate the technology in the EFL classroom as far as the integration itself is time-consuming and requires teachers' creativity. If we are talking about teaching EFL such four basic skills as listening, reading, writing and speaking must be covered.

It should be noted that listening is one of the most complicated tasks for teaching EFL, while being the first to comprehend and, consequently, considered to be the key language skill. A lot of scholars studied this skill, the peculiarities of its obtaining, and ways and means of improving the process. Thus, Derrington and Groom (2004) distinguished several types of listening, namely: *informative*, which assumes the information maintained by the learner; *appreciative*, when the learner perceives the information due to his manner and enjoys it; *critical* which means the deduction, analysing the information thoroughly, *discriminative* when the listener determines emotions and conclusions due to the voice tone, and *empathic* which presumes the nonverbal behaviour of the listener that pays attention to what is said. The abovementioned listening types are helpful for the recognition of the video material sort that can be used depending on the students learning peculiarities and their listening preferences.

Due to Ginther (2002) and Ockey (2007), listening does not only involve the comprehension of the speakers' utterances but also the perception of visual facets, while dealing with the listening comprehension activities. Besides, as Renukadevi (2014) admits, every study conducted concerning language skills mastering has substantiated that in the process of communication, people can acquire up to 45 % of language expertise through listening, 30 % of language competence are obtained through speaking, 15 % of listening skills are achieved through reading, and 10 % are reached through writing respectively. Other scientists also studied the nature of listening, namely Derrington and Groom (2004), Donesch-Jezo and Misztal (2012); methods, and tool of teaching the language acquisition skill, Byrne (2007), Liu et al,. (2014), Chaikovska,

Zbaravska and Bilyk (2019), Oye, Salleh and Iahad (2012); specificities of teaching EFL, Hamburg et al. (2003), Bates (2005), Flowerdew and Miller (2014), Roliak (2019); challenges at ESP classes Kučirkova, Kučera and Vostra Vydrova (2014), Humeniuk (2020) and others, but the problem has many more issues to cover as the technology is constantly developing and provides teachers with new means and ways of the material being presented.

Taking into consideration the forementioned, it can be summarised that listening is a complicated process comprising a list of activities such as the differentiation of language sound, intonation, visual characteristic, interpretation, value, and reaction for the content of meaning. No doubt that to master the listening skill, the best way is to interact with a native speaker. It is occasionally probable to invite world-class guest experts into high school to speak with students about their majors, field of expertise, or future occupation. However, it can be not that problematic to perform their bright thoughts, ideas, and beliefs directly to the students using the excellent e-collection of TED Talks accessible online any time a teacher wishes.

What do TED (Technology, Entertainment, Design) Talks stand for? It is an organisation that posts thematic talks online, under the slogan of "ideas worth spreading". Originally, they focused on technology and design and extended their net subsequently including a vaster scope of cultural and academic content. There are a lot of prominent speakers on TED Talks, such as Bill Gates, Shai Agassi, Richard Dawkins, Stewart Brand, and many Nobel Prize winners. They possess over 2,600 free of charge and accessible online TED Talks. Applying TED Talks arose much interest due to their capacity to be involved in the educational process for improving students' listening skills. Application of TED Talks in ESP class will guarantee an educator modern interesting content delivered by a popular native speaker with a possibility to rehear it at any suitable time.

TED Talks have already been the object of scientific interest for some scholars. For instance, Rubenstein (2012) states that TED Talks provide applicable content that allows teachers to be aware of best practices, current challenges, and innovative opportunities for the future and to involve all these into the learning process. The researcher highlighted several talks facilitating teachers' insight into students' motivation and learning practices (Rubenstein, 2012). Takaesu (2013) analysed the impact of TED lectures on students' listening skills and their study motivation. The author also developed some strategies to tailor the activity for lower-proficiency students (p.151). A lot of attention was dedicated to methodology and different learning techniques. Harb (2018) studied the integration of Information and Communication Technologies in mastering writing proficiency on the example of Lebanese students. The scientist investigated the utility of TED Talks videos as a motivation tool that activated prior knowledge rather quickly (p.76). Rudneva et al., (2019) analysed the implementation of TED Talks in the process of blended learning for non-linguistic students at a Russian university. TED lectures were suggested as a part of the academic curriculum for undergraduate students of the Faculty of Ecology and aimed at enlarging students' vocabulary and listening skills (p.5070). Wu (2020) examined the use of authentic video content in EFL classes. The paper aimed at integrating authentic online videos into listening exercises. The research took place at a private university in southern Taiwan. The videos were used as one of the resources for learning English aurally; however, the author highlighted the teacher's role in the learning process as, without effective mentoring, EFL students may find it difficult to perceive the video content and quickly lose motivation to learn English consequently (p.36).

A literature review at TED Talks showed that foreign scholars, basically in the Asian educational environment, were originators in the introduction of this resource as a modern teaching tool. They argue that TED Talks ensure students' positive regard towards education, motivation, and self-awareness; this innovative tool can provide language proficiency through authentic speech, allowing students to study at their own pace and in a safe environment. Some scholars have developed pedagogical models for TED Talks in higher education and studied TED Talks as a new technological tool in higher education, the effectiveness of e-learning in the form of listening to TED Talks in higher education etc.

In this paper, we have tried to accurately estimate the effects of TED Talks on students' listening comprehension skills and, consequently, speaking proficiency. To achieve the goal some popular quantitative and statistical methods were applied (to obtain more objective results). Also, an attempt to generalise the research findings of the modern scholars in the field and check the data obtained for consistency with their conclusions was made.

Thus, the **objective** of the paper is to analyse the influence of TED Talks on mastering students' listening skills.

The **hypothesis** is that the use of TED Talks for mastering listening comprehension at ESP classes will improve students' listening skills, and, as a consequence, will enhance their learning performance.

Methods

Research Design. To conduct full-fledged research and obtain objective results, a mixed-methods approach was applied. Quantitative methods such as an experiment and a survey were predominantly used. The experiment was aimed at finding out the cause-and-effect relations between regular listening to certain thematic TED Talks and therefore mastering students' listening comprehension. The survey in the form of a written questionnaire was applied to confirm a hypothesis of TED Talks efficacy. A descriptive method was used for analysing the students' survey and research outcomes.

Participants. The research was conducted based on the State Agrarian and Engineering University in Podillia. The experimental period lasted for five months (one semester) and included a part of completely online education due to quarantine concerning pandemic Covid19. The educational experiment was represented by 50 full-time students (subjects) majoring in Agrarian Engineering and 50 full-time students majoring in Electrical Engineering and Energy. The groups of students were involved in the online and offline educational process based on their bachelor curriculum. The subjects were divided into the experimental (students majoring in Agrarian Engineering) and control groups (students majoring in Electrical Engineering and Energy) to obtain the objective of the research. To be more precise there were three experimental groups and three control groups (each educator taught one control and one experimental group respectively) to get enough number of students for the relevant results. They were considered as one experimental group and one control group respectively. Three teachers of English were involved in the experiment and one teacher of Economics, who produced the statistical analysis.

Instruments and Procedure. Online study support for ESP was created by the educators as a four-credit course due to ECTS in the Moodle Learning Management System. Due to the university syllabus, the students had a mandatory ESP course (2 academic hours a week). The correlation of classwork and self-study due to the syllabus was 1 to 2. Both groups had an equal number of ESP classes. The textbook *Career Paths: Engineering* by Charles Lloyd, James A. Frazier (2015) designed specifically for students of engineering specialities, and the textbook *Career Paths: Electrician* by Virginia Evans, Jenny Dooley, Tres O'Dell (2015) for electrical engineering and energy specialists respectively were used in English classes. Both textbooks are developed for students with the level of language competence equalling to B1. It was the only source for listening and speaking material with control group students, while the students of the experimental group had English classes with the integration of TED Talks of B1 level consequently. Thus, TED Talks were used only in the experimental group. At the beginning of the course, the students did the pre-test, and at the end of the semester – the post-test respectively. Both tests were of the same content and mode concentrated presumably on listening comprehension and speaking tasks. The part that involved listening skills checking was done on computers using material from the site https://www.bestmytest.com/ielts/listening. The speaking section was checked and evaluated by the teachers converting the grades into a percentage. To get students' feedback a questionnaire analysis was performed (Table 2) at the final stage of the experiment. Students of all groups were asked several questions to express their ideas about the use of e-learning, the benefits of TED Talks, etc.

Data Analysis. Firstly, various tables with students' results and outcomes were made. Every student's total score (assessed in the range from 61 to 100 points) in both tests was recorded and entered into the chart, which had been previously divided into 4 columns (I column – 61-70 points, II – 71-80 points, III – 81-90 points, IV – 91-100 points), after that the percentage for each column was calculated and added to the table. These procedures were done with the help of quantitative methods of research, while for getting objective results it is desirable to use statistical analysis methods.

To compare the improvements in listening and speaking and the efficiency of TED Talks, consequently, the statistical significance tests were applied, particularly Mann-Whitney and Wilcoxon non-parametrical pair tests. The purpose of the Mann-Whitney test was first to check and process independent patterns which were pre- and post-tests within different groups. While the Wilcoxon pair test was applied with the dependent samples (the pre-test and the post-tests within the same group). The above-mentioned tests were conducted on the significance level of $\alpha = 0.05$ as it is usually suggested by scholars, namely Brownlee (2019), Sharpe, De Veaux, and Velleman (2010). To calculate the obtained data, the statistical program – Statistica 10 was used. The results in the pre-test and the post-test were analysed apart within the control and the experimental group so that it was possible to inquire the occurrence of the statistically important differences within single skills and the student's success or failure within their groups.

The post-experiment questionnaire aimed at clearing up the students' opinions and attitudes to e-learning in general and TED Talks specifically, and getting assured of the benefits of TED Talks engaging in the education process and students' appreciation of the lessons' content and form. Almost all the students involved in the experiment (98%) took part in the questionnaire and 80 % of them were sure about answering

the questions. The majority of respondents (65%) testified that using TED Talks was beneficial, engaging, and worthy.

Ethical Issues. Ethical principles such as freewill participation, informed consent (all students were warned about the experiment, its stages, and consequences and agreed to participate), objectivity and justice, anonymity, and confidentiality were fully accomplished in the research.

Results

The post-test that comprised listening comprehension exercises and speaking tasks was suggested to both groups of students. Making the research we also calculated the p-value to find out the existence of statistical significance. The statistical significance level is usually represented as a p-value between 0 and 1. To obtain p-value index the results of the whole group was calculated not a particular student's score. The lower p-value indicates that the null hypothesis should be repudiated due to McLeod (2019), in our case it means there is no essential difference in mastering listening skills between two examined groups. The congruent outcomes are presented in the table below.

Table 1. The outcomes of pre-test and post-test

Group type	Students score	Language skills					
		Listening			Speaking		
		Pre-test outcomes %	Post-test outcomes %	p-value	Pre-test outcomes %	Post-test outcomes %	p-value
Experimental group	91-100	5 %	8 %	0.000000	7 %	11 %	0.000040
	81-90	10 %	18 %		17 %	23 %	
	71-80	40 %	54 %		50 %	60 %	
	61-70	45 %	20 %		26 %	6 %	
Control group	91-100	8 %	9 %	0.000213	6 %	8 %	0.021960
	81-90	16 %	20 %		14 %	17 %	
	71-80	37 %	40 %		47 %	51 %	
	61-70	39 %	31 %		33 %	24 %	

The research result showed that the students of both groups improved their post-test scores, nevertheless, the experimental group revealed better results both in listening comprehension and speaking skills. It could be justified by comparing their indicators. Analysing the outcomes of the experimental group it can be stated that 25 students of 50 raised their grades in comparison to 9 out of 50 students from the control group. Similar outcomes can be noticed in the speaking module of post-experiment testing. 19 students of 50 in the experimental group improved their score in comparison to 8 out of 50 students in the control group. Besides looking at the experimental group p-value indicators, it should be mentioned they are lower than the significance level of 0.05, there are statistically essential distinctions between the pre-test and post-test results both for listening comprehension and speaking skills. It should be stated that the p-value for processing listening comprehension outcomes in the experimental group equals 0,000000, thereby it testifies an excellent result. As for speaking skills improvements in the experimental group – the result is also rather high – p-value equals 0.000040 which is slightly worse than for listening skills. So, it must be stated that students from the experimental group improved a lot, mastering both listening and speaking skills. As for the control group, here the p-value indicators are higher a bit compared to the significance level of 0,05, thus slightly lower results are observed due to the indicators of the experimental group. Students increased their listening and speaking skills but not that much. Therefore, it can be suggested that the indexes would be increasing, in the case of study prolongation. Nevertheless, the test score difference brought off by the students after the TED Talks were involved in the education process in the classroom and remotely demonstrated the efficiency of TED Talks integration while teaching ESP.

The data analysis results are demonstrated in the Table 2 below, they perform the percentage of students' preference for the assertion. As it can be seen from the table, a large number of students prefer the e-learning process in general – 65 %, 70 % of students consider TED Talks to be rather helpful to obtain listening skills even though only 50 % of the whole number were involved in the experiment. It should be noted that those students who participated in the experiment unanimously voted for TED Talks.

Table 2. Questionnaire results about students' opinion on e-learning

Statement	Highly agree	Agree	Not sure	Disagree	Highly disagree
The E-learning process, in general, is very effective	15 %	50 %	19 %	10 %	6 %
TED Talks videos are more engaging and thought-provoking than other listening material	10 %	60 %	20 %	5 %	5 %
TED Talks can improve my listening skills	10 %	60 %	19 %	6 %	5 %
TED Talks can improve my level of English	10 %	60 %	21 %	5 %	4 %
I would rather listen to other audio material than TED Talks	7 %	13 %	20 %	39 %	21 %

Dealing with listening skills, the most of students (70%) are sure that TED talks can improve their listening and it is a rather good result as even not all of the subjects were involved in the experiment. Due to the interview with the students, it can be indicated that they increased the level of their listening skills after the application of TED Talks. Besides watching TED Talks was effective not only for practising listening skills, but it occurred to be very helpful in many ways including raising the speaking skills, increasing vocabulary, especially such lexical units as slang, idioms, and academic words, spreading the general outlook in terms of customs and cultural traditions of the country whose language has been mastering.

Discussion

Listening is probably the most challenging skill in foreign language acquisition for the non-native educator thereby it is desirable to involve native expert's speech patterns at ESP class. Despite the fact there are several types of research devoted to the studying of the listening nature, TED Talks impact on listening competence, the topic is not fully covered and there is a necessity to further researching. TED Talks integration in the education process can solve several problems such as listening to a native speaker, whose language is modern, fluent, phonetically accurate, and besides, the ideas are usually presented by the experts for a certain field. Thus, the research aim was to analyse the pros of the application of TED Talks at ESP class with students majoring in Engineering, particularly Agrarian Engineering, Electrical Engineering, and Energy.

The current research presents the results of the experiment conducted at the State Agrarian and Engineering University in Podilia, Ukraine. The subjects participating in the experiment (the total number was 100) were divided into two groups – the experimental and control ones. Both groups had the same curriculum, textbook, pre-, and post-test. The only difference consisted in engaging TED Talks videos in the experimental group. The students' results in both tests were processed and analysed statistically using Mann-Whitney and Wilcoxon non-parametrical pair tests. The research results demonstrated the improvement of both groups but it must be admitted, the experimental group showed better outcomes both in listening comprehension and speaking skills. Thus, the results of the current study confirmed the hypothesis, stated at the beginning of the experiment, of TED Talks positive influence on mastering students' listening skills. We strongly agree with the thesis that EFL lessons should comprise authentic texts in order to give students a better understanding of how English is actually used and TED Talks turned out to meet this very requirement.

The data obtained are broadly consistent with the major trends in modern pedagogy so far, developed by Rubenstein (2012), Takaesu (2013), Harb (2018), Rudneva et al (2019), Wu (2020), and others. That is a completely positive effect of TED Talks integration into the classroom for increasing students' language competence precisely listening comprehension. Admittedly, most of the researchers studied the students' learning motivation, while analysing the introduction of TED Talks into the educational process. Whereas we tried to examine more global impact of TED Talks on students' listening and speaking skills in the Ukrainian context integrating these videos at ESP class for engineering students. In addition to mastering listening skills by perceiving authentic texts, students improved their speaking skills and enlarged their professional vocabulary, as the videos applied, were of engineering thematic and consequently, widened the general outlook.

The experiment results agree to the efficacy of TED Talks integration into the learning process in the experimental group, however, the indicators are not crucially high. Thus, it can be assumed that the indicators will increase if the training is extended. The questionnaire given to get students' feedback in terms of integrating e-learning in the EFL acquisition proved that a higher percentage of students consider the e-

learning process to be highly effective and confirm our hypothesis that the integration of TED Talks is beneficial for mastering listening skills, it is a worthy, thought-provoking, and engaging content for ESP classes.

Based on the experience obtained and combined with all the conclusions made in previous studies some pedagogical recommendations can be suggested for an educator applying TED Talks at ESP class. Firstly, it is necessary to observe a definite scaffolding while introducing an essential idea – from simple issues to more complicated ones. Secondly, it is important to pay attention to thought application – use only the proper video content, suitable for the topic of the lesson and presented by the field experts. Thirdly, it is essential to use the source material – no useless watching – the material should be analysed, discussed, and applied in practice. Finally, students must not be passive listeners, they should be involved in the process from the very beginning – choose the content, process the material, give feedback and implement it into practice.

Using TED Talks in class is worthy and justified, the material can also be applied during integrated lessons on professional subjects. So far, the authors do not insist on using TED Talks as the only option for mastering listening skills and developing speaking skills respectively. Nowadays there are plenty of options and technics to be applied to ESP classes. The current research suggests the peers one of the ways for improving listening and speaking skills using modern technology, up-to-date content, original material presentation, and specific field of study orientation.

A valuable experience, gained in the course of the study, led to generating the following list of tips that can be suggested for a teacher to pay attention to while using TED Talks at ESP class:

1. Introducing an essential thought

A definite framework exists for the classes presented in every part of the course. To understand Z, it is necessary to perceive A and B primarily. At the beginning of the course or the start of a particular module, an engaging TED Talk can lay the foundation, perform the so-called pre-task activity, for the issues that will be covered next. For instance, starting the ESP course with students mastering electrical engineering, we suggested them to listen to the TED Talk "Using biology to rethink the energy challenge" by Juan Enriquez (2007). Juan Enriquez questions the standard definition of bioenergy. Various hydrocarbons like oil, coal, gas, and others are not chemical but purely biological products, based on plant matter and thus, growable. He claims the whole approach to fuel needs to be changed. It is for sure the talk provoked a discussion with the students.

2. Thought application

In case you succeeded to find a TED Talk that particularly covers a concept presented in your ESP class, the video with the expert of the studied field will usually be more efficient than a lecture. Video provides another option for the various learners' types in your classroom as well. Thus, studying the topic of Renewable energy the students were suggested to listen to the talk "How to decarbonize the grid and electrify everything" by John Doerr and Hal Harvey (2020). After watching the video, listening to the ideas set forth, the students will be able to look at actual graphs consciously and more critically.

3. Using the source material

The ability to summarise, quote, and paraphrase usually needs to be reinforced and practised. Summary, for instance, can be seemed misleadingly easy as students are often able to summarise verbally. While making a written summary (informative but laconic) can really become challenging. Some students consider it to be necessary to cover all trivia in their summaries while others do not go into detail at all. For example, while studying global warming we watched the talk "Fossil fuel companies know how to stop global warming. Why Don't They?" by Mylles Allen (2020).

4. Student's voice and choice

It is also important to involve students in the education process not only in reproduction but also in creation. Every semester, students can be challenged to search for the TED Talks they consider to be involving or thought-provoking and share them. The TED Talks can be shared on a discussion board or discussed in the educational chat. Pair- or teamwork and/or laconic responses suit here as well. Students usually support the idea to choose what they are writing about, but selecting topics and realizing how to write or talk about that particular one can be a challenge for them indeed. The practice of selection and preliminary research, especially when doing small assignments, makes sense.

Besides, some unarguable benefits of listening to TED Talks as complementary to learning a foreign language are worth mentioning. They are as follows:

1. Most of the TED Talks are provided with subtitles (sometimes they can count more than twenty languages), available via a small speech bubble located in the bottom, on the right side of the talk so a student can switch it on during the early stages of learning and switch it off on the advanced level consequently.

The search process is easy to operate. There are two ways how to look for TED Talks. One can either use the standard search function available on the website or look through their topics page.

Most talks are short. Some of them last less than six minutes which allows a teacher to imply them as short sections of classroom lessons. The longest talks are around 40 minutes and probably it is better to apply them through a flipped learning context. A teacher can suggest students watch clips at home and provoke the discussion in the class afterward or provide some feedback as a home task.

TED Talks are usually quite academic by their nature, which is why appropriate to anyone aged about 12 or over.

The application of TED Talks is rather independent, mobile, and flexible. Students can download talks or listen to them online, they can stop and make notes, if necessary, listen to segments once again or make pauses to look in or study some tables, figures, graphics or graphs more thoroughly.

Limitations

The main limitation of the experimental result is the time commitment. To see the true impact of an experiment one should run it long enough. We were limited in time as the students involved in the experiment had the course of English just for one year due to the academic curriculum. The analysis does not also enable us to determine all the challenges students face, especially at lower levels of language proficiency, and effective strategies to help students overcome them and become better listeners.

Conclusions

Summing up, Ukrainian pedagogy is constantly developing due to modern achievements of this science worldwide. To increase the level of EFL and to fit the lesson content at ESP classes to the students' needs and society requirements, an educator has to be involved in modern scientific trends and progressive research. In this view, we can define TED Talks integration to the learning process as a quite efficient one for mastering students' language competence, precisely listening and speaking skills. The most essential conclusion that can be drawn from the current research that the application of TED Talks video has a substantial influence on improving such language skills as listening comprehension and speaking along with broadening student outlook in general, proved by the statistical analysis of the pre-test and the post-test outcomes.

Analysis of the questionnaire demonstrated that students were more engaged, involved, and motivated to grasp professional English with TED Talks integration. Moreover, the content and the specificities of its presentation provided by TED Talks were rather up-to-date, true to life, and thought-provoking that led to vital debates and discussions and made students fond of the learning process. Presented by native speakers, field experts, who are proficient enough and possess accurate and fluent language competence, TED Talks provided students with the simultaneous possibilities to practice phonetics, stylistics, lexical and grammatical construction of modern English used in their professional environment. Ultimately, TED Talks are beneficial for students concerning the remote or blended learning process.

Further researches are claimed to study the outcomes of e-learning education using different modern methods and tools applied to high school students studying ESP and other subjects.

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