

Torekeldi A.S.¹, Seidaliyeva G.O.²

^{1 2}Abai Kazakh National Pedagogical University

¹ Master's student

² PhD, acting Associate Professor

THE EFFECT OF SEMANTIC PAUSING ON LISTENING COMPREHENSION AND PERCEIVED COGNITIVE LOAD AMONG A2 EFL LEARNERS

Abstract

The study examines the effect of semantic pausing on listening comprehension and perceived mental effort among A2-level EFL learners. The study involved 24 first-year students aged 15-16 from a vocational college. A counterbalanced within-subject design was employed, in which participants listened to two A2-level texts in both an original condition and a semantic-pause condition. The semantic-pause versions contained additional one-second pauses inserted at predetermined semantic boundaries, while the lexical, grammatical, and informational content remained unchanged. After each listening task, participants completed a 10-item comprehension test and provided a 9-point rating of perceived mental effort. The results showed a statistically significant improvement in listening comprehension in the semantic-pause condition compared with the original condition. However, the difference in perceived mental effort was not statistically significant, although a slight descriptive reduction was observed. The findings suggest that semantic pausing may provide A2-level learners with additional processing time and support their comprehension of spoken English without necessarily reducing their subjective perception of mental effort. The study contributes to research on temporal modifications of spoken input and suggests that strategically placed pauses may be a practical way of adapting listening materials for lower-proficiency EFL learners.

Keywords: *semantic pausing, listening comprehension, perceived mental effort, cognitive load, A2 EFL learners, second-language listening.*

Төрекелді А.С.¹, Сейдалиева Г.О.²

¹²Абай атындағы ҚазҰПУ

¹²курс магистранты

²PhD, қауымдастырылған профессор м.а.

Аңдатпа

Мақалада ағылшын тілін шетел тілі ретінде А2 деңгейінде меңгеріп жүрген білім алушылардың тыңдалым арқылы түсінуіне және қабылданатын ақыл-ой күшіне семантикалық паузалардың әсері зерттеледі. Зерттеуге кәсіптік колледждің 15-16 жастағы 24 бірінші курс студенті қатысты. Теңгерімді ішкі топтық эксперименттік дизайн қолданылды. Зерттеу барысында қатысушылар А2 деңгейіне бейімделген екі аудиомәтінді бастапқы нұсқада және семантикалық паузалар енгізілген нұсқада тыңдады. Семантикалық паузалар нұсқасында алдын ала белгіленген мағыналық шекараларға бір секундтық қосымша паузалар енгізілді, ал мәтіндердің лексикалық, грамматикалық және ақпараттық мазмұны өзгеріссіз сақталды. Әрбір тыңдалым тапсырмасынан кейін қатысушылар 10 сұрақтан тұратын тыңдалым арқылы түсіну тестін орындап, қабылданатын ақыл-ой күшін 9 балдық шкала бойынша бағалады. Нәтижелер семантикалық паузалар қолданылған жағдайда тыңдалым арқылы түсіну көрсеткішінің бастапқы нұсқамен салыстырғанда статистикалық тұрғыдан маңызды деңгейде жоғарылағанын көрсетті. Сонымен қатар

қабылданатын ақыл-ой күшіндегі айырмашылық статистикалық тұрғыдан маңызды болмады, дегенмен оның орташа көрсеткішінде аздаған төмендеу байқалды. Алынған нәтижелер семантикалық паузалардың А2 деңгейіндегі білім алушыларға келіп түсетін ақпаратты өңдеуге қосымша уақыт беріп, ауызша ақпаратты түсінуді қолдай алатынын көрсетеді, алайда бұл олардың субъективті қабылдайтын ақыл-ой күшін міндетті түрде төмендетпейді. Зерттеу ауызша сөйлеудің уақыттық ұйымдастырылуына қатысты зерттеулерді толықтырады және мағыналық шекараларға стратегиялық түрде орналастырылған паузаларды ағылшын тілін төмен деңгейде меңгеріп жүрген білім алушыларға арналған тыңдалым материалдарын бейімдеу құралы ретінде пайдалануға болатынын көрсетеді.

Түйін сөздер: *семантикалық паузалар, тыңдалым арқылы түсіну, қабылданатын ақыл-ой күші, когнитивтік жүктеме, А2 деңгейіндегі білім алушылар, шетел тілін тыңдау.*

Төрекелді А.С.¹, Сейдалиева Г.О.²

¹²КазНПУ им.Абая

¹Магистрант 2 курса

²PhD, и.о.ассоциированный профессор

Аннотация

В статье исследуется влияние семантических пауз на понимание устной речи и воспринимаемое умственное усилие у учащихся уровня А2, изучающих английский язык как иностранный. В исследовании приняли участие 24 студента первого курса в возрасте 15-16 лет, обучающихся в профессиональном колледже. Был использован сбалансированный внутригрупповой экспериментальный дизайн, в рамках которого участники прослушивали два аудиотекста уровня А2 в оригинальном варианте и в варианте с семантическими паузами. В версии с паузами дополнительные паузы продолжительностью одну секунду были вставлены в заранее определённых семантических границах, при этом лексический, грамматический и информационный материал текстов оставался неизменным. После каждого задания на аудирование участники выполняли тест на понимание, состоящий из 10 вопросов, и оценивали воспринимаемое умственное усилие по 9-балльной шкале. Результаты показали статистически значимое улучшение понимания устной речи в условиях с семантическими паузами по сравнению с оригинальным условием. Вместе с тем различия в воспринимаемом умственном усилии не достигли статистической значимости, несмотря на небольшое описательное снижение его среднего показателя. Полученные результаты позволяют предположить, что семантические паузы могут предоставлять учащимся уровня А2 дополнительное время для обработки поступающей информации и способствовать лучшему пониманию устной речи, не обязательно снижая субъективно воспринимаемое умственное усилие. Исследование дополняет работы, посвящённые временной организации устной речи, и показывает, что стратегически расположенные паузы могут использоваться для адаптации аудиоматериалов для учащихся с более низким уровнем владения английским языком.

Ключевые слова: *семантические паузы, понимание устной речи, воспринимаемое умственное усилие, когнитивная нагрузка, учащиеся уровня А2, аудирование на иностранном языке.*

Introduction

When learning a second language, students often struggle to comprehend spoken language because it requires information to be processed in real time. Unlike written input, which allows learners to reread a confusing passage or infer the meaning of an unfamiliar word from the surrounding context, spoken language is transient and provides limited opportunities for deliberate processing. While listening to a recording, learners must simultaneously recognize linguistic information, segment the speech stream, construct meaning, and retain relevant information as the

message unfolds. Such demands can place a particularly heavy cognitive burden on learners with lower levels of English proficiency, as their limited linguistic knowledge may require greater cognitive effort when processing spoken input [1; 2].

From a cognitive perspective, spoken language comprehension involves several processes operating simultaneously. Goh [1] describes second-language listening as a process involving perception, parsing, and utilization, emphasizing that difficulties may arise when learners are unable to process incoming speech quickly enough. Similarly, Vandergrift and Goh [2] describe listening as an active process of constructing and monitoring meaning rather than merely receiving spoken information. For learners with lower language proficiency, the limited time available for processing may therefore become a significant source of difficulty. When faced with unfamiliar vocabulary, rapid speech, or insufficiently segmented input, learners may struggle to retain previously processed information while simultaneously processing subsequent parts of the message [1; 2].

These difficulties can also be examined through the lens of Cognitive Load Theory (CLT). Sweller [3] posits that working memory has a limited capacity and that learning and comprehension can be hindered when information-processing demands exceed the cognitive resources available to the learner. This limitation is particularly relevant to foreign language listening, as learners must process linguistic information while the auditory material unfolds continuously over time. Jiang [4] applies Cognitive Load Theory specifically to foreign language listening and examines the relationship between cognitive load, working memory, language processing, and learners' levels of expertise. Consequently, instructional modifications that provide learners with additional opportunities to process incoming information may potentially make listening tasks more manageable [3; 4].

One possible way to support this process is through the use of pauses. Pauses are a natural feature of spoken language and can facilitate the segmentation of the speech stream into meaningful units [2]. In instructional listening materials, however, pauses can also be intentionally inserted at linguistically or semantically significant boundaries. Such pauses, referred to in the present study as semantic pauses, may provide learners with additional time to recognize and integrate information before processing the next segment of speech. The potential value of this approach is particularly relevant for A2-level learners, who may require additional time to recognize words, establish semantic relationships between ideas, and construct an overall understanding of the message.

Previous research indicates that pausing can influence second-language listening comprehension, although its effects are not necessarily consistent. Blau [5], for example, investigated the effects of syntax, speech rate, and pauses on listening comprehension and demonstrated that characteristics of spoken input can affect learners' understanding. Jacobs et al. [6] also examined the effect of pausing on listening comprehension among learners with different levels of language proficiency, while Leiser [7] investigated pausing as an input characteristic in relation to second-language learners' comprehension. These studies suggest that the pedagogical value of pauses depends not only on their presence but also on their placement, duration, and interaction with other characteristics of spoken input [5-7].

Despite existing research on pausing in second-language listening, further investigation is needed into how pauses positioned at semantic boundaries may affect both comprehension and learners' perceived cognitive load. In particular, relatively little attention has been given to whether semantic pauses can simultaneously support listening comprehension and reduce the mental effort perceived by learners during listening, especially among lower-proficiency EFL learners. Examining these outcomes together may provide a clearer understanding of whether the additional processing time provided by semantic pauses translates into measurable benefits for learners.

Therefore, the present study examines the effect of semantic pausing on listening comprehension and perceived cognitive load among A2 EFL learners. It compares learners' performance when listening to spoken materials containing semantically positioned pauses with their performance when listening to materials presented without additional pauses. By examining

both comprehension outcomes and learners' perceived cognitive load, the study seeks to determine whether semantic pausing can serve as a practical modification for making listening input more accessible to lower-proficiency language learners.

Methodology

The study involved first-year students aged 15-16 who were studying at Almaty College of Fashion and Service. The initial pool consisted of 50 students from two groups of approximately 25 students each. Before the main experiment, a language proficiency screening procedure was conducted to identify learners whose English proficiency was approximately at the A2 level. Based on the screening results, 24 students were selected to participate in the study. The selected participants were divided into two groups of 12 students. This procedure was used to ensure a relatively comparable level of English proficiency among the participants rather than assuming that all first-year students had the same language level. Participation was voluntary, and the students were informed that their individual results would be used for research purposes only.

A counterbalanced within-subject experimental design was used to examine the effect of semantic pausing on listening comprehension and perceived cognitive load. Each participant was exposed to both the original and semantic-pause conditions, allowing the two conditions to be compared within the same participants. To reduce potential order and practice effects, the sequence of the conditions was counterbalanced across the two groups. One group completed the original-condition tasks before the semantic-pause tasks, whereas the second group completed the semantic-pause tasks first. The order of the two listening topics was also balanced so that neither topic was systematically associated with one experimental condition or one position in the sequence.

Two A2-level listening texts were prepared for the experiment: "Almaty: A Modern City Near the Mountains" and "Kazakh Cuisine: Traditional Dishes and Everyday Life". The first text focused on Almaty, including its geographical location, places of interest, everyday activities, surrounding mountains, weather, and public transport. The second text focused on traditional Kazakh food, common dishes, tea-drinking practices, family gatherings, celebrations, and contemporary food traditions. Both texts addressed familiar everyday and cultural topics considered appropriate for A2-level learners.

For each text, two audio versions were prepared, resulting in four experimental audio files: an original version and a semantic-pause version of the "Almaty" text, and an original version and a semantic-pause version of the "Kazakh Cuisine" text. Each text consisted of 36 information units, and the corresponding versions contained the same units in the same order. The semantic-pause versions were created by inserting additional one-second pauses at predetermined semantic or linguistic boundaries. The pauses were inserted at meaningful points of information segmentation rather than randomly distributed throughout the recordings. The purpose of this manipulation was not to reduce speech rate but to provide learners with brief additional processing time while maintaining the natural flow and structure of spoken language. The placement and use of pauses were informed by previous research examining the role of pauses in second-language listening [5-7].

The original and edited versions of each text contained exactly the same lexical and grammatical material. No vocabulary, grammatical structures, information content, or information-unit order was changed. The experimental manipulation was therefore limited to the temporal organization of the speech. The materials were prepared with attention to comparability in overall length, speech rate, vocabulary, grammatical complexity, and general difficulty. The number and location of the additional pauses were determined in advance based on the identified semantic boundaries.

The experiment was conducted during regular English lessons in a quiet classroom setting. Before the main procedure, participants received brief instructions and completed a short practice listening activity to become familiar with the procedure. Each participant then completed four listening tasks: two original recordings and two corresponding semantic-pause recordings. The

tasks were presented according to the counterbalanced order assigned to each group. Participants listened to each recording once and were not allowed to pause, rewind, or replay the audio.

Immediately after each recording, participants completed a 10-item comprehension test. The tests assessed understanding of the main idea, specific information, and relationships between pieces of information presented in the recording. Each correct answer received one point, resulting in a maximum score of 10 points for each listening task.

After each comprehension test, participants provided a subjective rating of the mental effort they had experienced while processing the listening material. In the present study, perceived cognitive load was operationalized as self-reported mental effort during listening tasks. It was measured using a 9-point mental-effort rating scale, with lower scores indicating lower perceived mental effort and higher scores indicating greater perceived mental effort. This approach follows the established use of subjective mental-effort ratings as an indicator of perceived cognitive load in cognitive-load research [8].

A short break was provided between the listening tasks to reduce fatigue. The same procedure was followed for all four recordings. Consequently, each participant provided comprehension and perceived mental-effort measures for both listening topics under both experimental conditions.

The data were analyzed by comparing participants' listening comprehension scores and perceived mental-effort ratings between the original and semantic-pause conditions. Descriptive statistics, including means and standard deviations, were calculated for both outcome measures. Since each participant completed both experimental conditions, within-participant comparisons were conducted. The scores obtained from the original recordings were compared with the corresponding scores obtained from the semantic-pause recordings.

Depending on the distribution of the within-participant differences, either a paired-samples *t*-test or a Wilcoxon signed-rank test was planned. The analysis was intended to determine whether the introduction of additional one-second pauses at semantic boundaries was associated with differences in listening comprehension and perceived mental effort among A2-level learners.

Results

Descriptive statistics were calculated to examine differences in listening comprehension and perceived mental effort between the original and semantic-pause conditions. The analysis included data from all 24 participants. As each participant completed both experimental conditions, the scores were compared using within-participant analyses (Table 1).

Measure	Original	Semantic pause	Mean difference	p
Listening comprehension	6.63 (1.01)	6.92 (0.97)	+0.29	.005
Mental effort	5.38 (1.41)	5.13 (1.78)	−0.25	.207

Table 1. Descriptive and inferential statistics.

For listening comprehension, participants obtained a mean score of 6.63 (SD = 1.01) in the original condition. In the semantic-pause condition, the mean score increased to 6.92 (SD = 0.97). Thus, the introduction of semantic pauses was associated with an average increase of 0.29 points on the 10-point comprehension test. At the individual level, 6 participants demonstrated higher scores in the semantic-pause condition, while the remaining participants either maintained the same score or did not show an increase. No participant demonstrated a decrease in comprehension after the introduction of semantic pauses (Figure 1).

A paired-samples *t*-test indicated that the difference between the two conditions was statistically significant, $t(23) = 3.08$, $p = .005$. A Wilcoxon signed-rank test was also conducted because the comprehension scores were discrete and showed a restricted range. The non-parametric analysis similarly indicated a statistically significant difference between the two

conditions, $W = 0$, $p = .008$. These results suggest that listening comprehension was significantly higher when the recordings contained pauses positioned at semantic boundaries.

The results for perceived mental effort showed a different pattern. In the original condition, participants reported a mean mental-effort score of 5.38 (SD = 1.41), compared with 5.13 (SD =

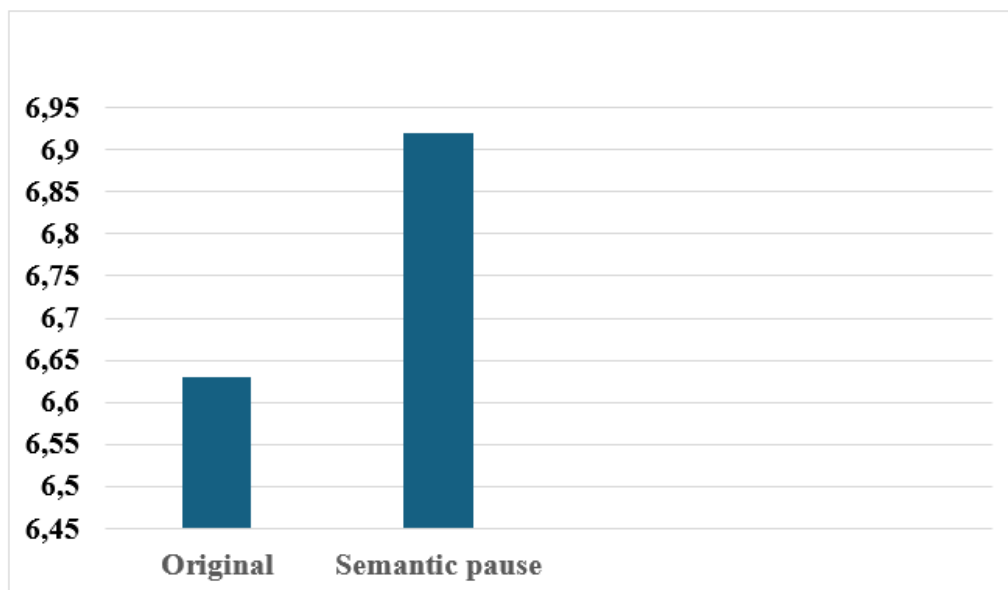


Figure 1. Mean listening comprehension scores in the original and semantic-pause conditions.

1.78) in the semantic-pause condition. The mean difference was therefore -0.25 points, indicating a small reduction in reported mental effort following the introduction of semantic pauses. However, the variability of the ratings increased in the semantic-pause condition, suggesting that participants did not respond uniformly to the manipulation.

The paired-samples t -test showed that the difference in perceived mental effort was not statistically significant, $t(23) = -1.30$, $p = .207$. The Wilcoxon signed-rank test produced a similar result, $W = 9$, $p = .196$. Therefore, although the descriptive statistics showed a slight reduction in perceived mental effort, the difference between the original and semantic-pause conditions was not statistically significant.

Overall, the results indicate that semantic pausing was associated with a statistically significant improvement in listening comprehension, whereas the observed reduction in perceived mental effort was not statistically significant. The two outcome measures therefore showed somewhat different response patterns to the experimental manipulation.

Discussion

The purpose of the present study was to examine whether inserting one-second pauses at semantic boundaries could affect listening comprehension and perceived mental effort among A2-level EFL learners. The findings provide evidence for a positive effect of semantic pausing on listening comprehension. However, the results do not provide sufficient evidence to conclude that semantic pauses significantly reduce learners' perceived cognitive load.

The most notable finding was the significant improvement in listening comprehension. Participants' mean comprehension score increased from 6.63 in the original condition to 6.92 in the semantic-pause condition. Although the absolute difference was relatively small, both the paired-samples t -test and the Wilcoxon signed-rank test indicated that the difference was statistically significant. This finding is consistent with the view that pauses can facilitate the processing of spoken input by creating additional opportunities for learners to segment and integrate information. In second-language listening, learners need to process incoming speech while retaining previously processed information, and additional processing time may help them manage this temporal demand [1; 2].

The finding can also be interpreted in relation to Cognitive Load Theory. According to Sweller [3], working memory has limited capacity, and performance may be affected when the

demands imposed by a task exceed the resources available to the learner. In the present study, semantic pauses may have temporarily reduced the temporal pressure associated with continuous speech. Rather than changing the linguistic content of the recordings, the pauses provided short intervals between meaningful segments. For A2 learners, who may need additional time to recognize words and establish relationships between pieces of information, this temporal adjustment may have supported more effective processing of the incoming message [3; 4].

The comprehension findings are also broadly compatible with previous research on pausing in second-language listening. Blau [5] demonstrated that characteristics of spoken input, including pauses, can influence listening comprehension. Similarly, Jacobs et al. [6] and Leiser [7] examined the role of pausing as an input characteristic and reported that the temporal organization of spoken language can affect learners' processing and comprehension. The present findings extend this line of research by focusing specifically on pauses placed at semantic boundaries and by examining A2-level learners. The fact that the lexical and grammatical content remained unchanged between the two conditions suggests that the improvement observed in the present study was associated with the temporal modification of the input rather than with differences in the content of the listening materials.

At the same time, the results concerning perceived mental effort require a more cautious interpretation. Participants' mean mental-effort rating decreased from 5.38 in the original condition to 5.13 in the semantic-pause condition. Descriptively, this represents a reduction of 0.25 points. However, the difference was not statistically significant ($p = .207$). Therefore, the present findings do not demonstrate a statistically reliable reduction in perceived mental effort. This result indicates that improved comprehension did not necessarily correspond to a measurable reduction in the amount of mental effort reported by the participants.

One possible interpretation is that semantic pauses may have allowed learners to use additional processing time more effectively without necessarily making the task feel substantially easier. Learners may have used the additional time to process, retain, and integrate information, resulting in better comprehension while maintaining a similar level of subjective mental effort. In this sense, the manipulation may have changed how learners allocated their available cognitive resources rather than simply reducing the total effort required for the task. This interpretation is compatible with the distinction between task performance and perceived mental effort in cognitive-load research [3; 4].

Another possible explanation concerns the measurement of cognitive load. In the present study, perceived cognitive load was operationalized through a single subjective mental-effort rating collected after each listening task. Such ratings provide useful information about learners' perceptions of task difficulty, but they may not capture all aspects of cognitive processing during listening. The increase in the standard deviation from 1.41 in the original condition to 1.78 in the semantic-pause condition also suggests considerable individual variation in participants' responses. Some learners may have experienced the pauses as helpful processing opportunities, whereas others may have perceived them as interruptions to the natural flow of the recording. Consequently, the absence of a statistically significant difference should not be interpreted as evidence that semantic pauses have no relationship with cognitive processing.

The difference between the comprehension and mental-effort findings is particularly relevant to the interpretation of the present study. Semantic pausing produced a significant improvement in the outcome directly measuring comprehension, while the subjective measure of mental effort showed only a small, non-significant reduction. This suggests that the primary observable benefit of the manipulation in this sample was improved comprehension rather than a clear reduction in perceived effort. The results therefore partially support the assumption that providing additional processing time can facilitate listening, but they do not fully support the expectation that such support will necessarily reduce learners' subjective cognitive load.

The counterbalanced within-subject design provides an important strength when interpreting these findings because every participant experienced both listening conditions. This allowed the comparison to be made within the same learners rather than between two completely

separate groups. In addition, the original and semantic-pause recordings contained the same lexical, grammatical, and informational material, with the experimental manipulation limited to the addition of pauses. Nevertheless, the study has several limitations. First, the sample was relatively small and consisted of 24 A2-level learners from the same educational setting, which limits the extent to which the findings can be generalized to other learner populations. Second, the comprehension measure was based on 10-item tests, meaning that relatively small changes in performance could produce noticeable differences in scores. Third, perceived mental effort was measured using a subjective rating scale and therefore may have been influenced by individual differences in how participants interpreted and used the scale.

Future research could address these limitations by involving a larger and more diverse sample of learners and by using multiple measures of cognitive load. For example, subjective mental-effort ratings could be combined with measures of task difficulty, processing time, or other indicators of cognitive processing. It would also be useful to investigate whether the effect of semantic pauses depends on the number, duration, and exact location of pauses, as well as on learners' proficiency level. Comparing A2 learners with learners at higher proficiency levels could further clarify whether additional processing time is particularly beneficial at lower levels of language proficiency.

In conclusion, the findings suggest that semantic pausing can support listening comprehension among A2 EFL learners. Participants achieved significantly higher comprehension scores when listening to recordings containing pauses at semantic boundaries. However, the corresponding reduction in perceived mental effort was small and did not reach statistical significance. Thus, within the conditions of the present study, semantic pausing appears to have a clearer relationship with comprehension performance than with learners' subjective perception of mental effort.

Conclusion

The present study examined the effect of semantic pausing on listening comprehension and perceived mental effort among A2-level EFL learners. The results indicate that adding one-second pauses at semantic boundaries had a positive effect on listening comprehension. Participants achieved significantly higher comprehension scores in the semantic-pause condition than in the original condition, suggesting that providing brief additional processing time can support learners' understanding of spoken input.

At the same time, the findings did not demonstrate a statistically significant reduction in perceived mental effort. Although participants reported slightly lower mental-effort ratings when listening to the recordings containing semantic pauses, the difference between the two conditions was not statistically significant. Therefore, the results suggest that semantic pausing may improve listening performance without necessarily producing a corresponding reduction in learners' subjective perception of mental effort.

These findings provide partial support for the application of Cognitive Load Theory to second-language listening. The additional processing time provided by semantic pauses may help learners manage the temporal demands of continuous speech and allocate cognitive resources more effectively. However, the absence of a significant effect on perceived mental effort indicates that improved comprehension and perceived cognitive load may not necessarily change in parallel.

From a pedagogical perspective, semantic pausing represents a relatively simple modification that can be incorporated into listening materials for lower-proficiency learners without changing their lexical, grammatical, or informational content. Carefully positioned pauses may therefore be useful when designing or adapting listening activities for A2-level EFL learners, particularly when learners are expected to process information in real time.

Nevertheless, the findings should be interpreted in light of the study's limitations, including the relatively small sample, the single educational setting, the use of short comprehension tests, and the reliance on a subjective measure of mental effort. Further research with larger and more diverse samples, longer listening materials, and multiple measures of cognitive load is needed to establish whether the observed effects can be replicated across different learner populations and

listening conditions. Future studies could also examine how pause duration, frequency, and placement influence both comprehension and cognitive processing.

Overall, the present study suggests that semantic pausing can be a useful temporal modification of spoken input for A2-level EFL learners. Its clearest observed benefit was improved listening comprehension, whereas its effect on perceived mental effort remained limited and statistically inconclusive.

References:

1. Goh C.C.M. *A Cognitive Perspective on Language Learners' Listening Comprehension Problems // System*. – 2000. – Vol. 28. – No. 1. – P. 55–75. – DOI: 10.1016/S0346-251X(99)00060-3.
2. Vandergrift L., Goh C.C.M. *Teaching and Learning Second Language Listening: Metacognition in Action*. – New York: Routledge. – 2012.
3. Sweller J. *Cognitive Load During Problem Solving: Effects on Learning // Cognitive Science*. – 1988. – Vol. 12. – No. 2. – P. 257–285. – DOI: 10.1207/S15516709COG1202_4.
4. Jiang D. *Cognitive Load Theory and Foreign Language Listening Comprehension*. – Singapore: Springer. – 2024. – DOI: 10.1007/978-981-97-2317-1.
5. Blau E.K. *The Effect of Syntax, Speed, and Pauses on Listening Comprehension // TESOL Quarterly*. – 1990. – Vol. 24. – No. 4. – P. 746–753. – DOI: 10.2307/3587129.
6. Jacobs G.M., et al. *The Effect of Pausing on Listening Comprehension*. – 1988. – ERIC ED304018.
7. Leeser M.J. *The Effects of Topic Familiarity, Mode, and Pausing on Second Language Learners' Comprehension and Focus on Form // Studies in Second Language Acquisition*. – 2004. – Vol. 26. – No. 4. – P. 587–615. – DOI: 10.1017/S0272263104040033.
8. Paas F.G.W.C. *Training Strategies for Attaining Transfer of Problem-Solving Skill in Statistics: A Cognitive-Load Approach // Journal of Educational Psychology*. – 1992. – Vol. 84. – No. 4. – P. 429–434. – DOI: 10.1037/0022-0663.84.4.429.