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STRATEGIES FOR REDUCING COGNITIVE LOAD IN INTERPRETING

This article investigates cognitive load, a key and heterogeneous factor influencing the quality, speed, and long-term durability of interpreting performance. As simultaneous and consecutive interpreting depend heavily on working memory capacity, interpreters must constantly manage the different cognitive demands and, in turn, identify effective load-reduction strategies to reduce errors and maintain accuracy under stress. The research aims to systematically analyze the theoretical basis of cognitive load in interpreting and to propose strategies to minimize overload by synthesizing information from cognitive linguistics, psycholinguistics, and cognitive psychology. The study provides an overview of influential cognitive load models, including D. Gill’s theory of effort and Sweller’s cognitive load theory, and presents a structured taxonomy that differentiates intrinsic, extraneous, and germane sources of cognitive load. The article also contrasts multiple load reduction strategies, including skill automation, optimized mental workspace organization, CAT tools, terminology management systems, and relaxation and/or mindfulness practices that promote attentional stability and cognitive endurance. Pedagogical interventions focusing on future interpreters’ learning (resilience, multitasking effectiveness, sustainable cognitive habits) are provided. Future research directions also highlight valuable areas for exploration (e.g., incorporating biometric measures into cognitive load determination and developing individualized training programs tailored to unique cognitive abilities). The study suggests that cognitive load is not in the background but in the center, influencing accuracy, productivity, adaptability, and long-term performance stability.

Key words: *cognitive load, interpreting, effort theory, working memory, automation, CAT tools, time management, psychological resilience.*

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СТРАТЕГІЇ ЗМЕНШЕННЯ КОГНІТИВНОГО НАВАНТАЖЕННЯ В УСНОМУ ПЕРЕКЛАДІ

У статті досліджується когнітивне навантаження, ключовий і неоднорідний фактор, що впливає на якість, швидкість і довгострокову стійкість перекладацької діяльності. Оскільки синхронний і послідовний переклад значною мірою залежать від обсягу робочої пам'яті, перекладачі повинні постійно справлятися з когнітивними вимогами, а отже, необхідно визначити ефективні стратегії зменшення навантаження, щоб зменшити кількість помилок і зберегти точність у стресових ситуаціях. Ця стаття має на меті систематично проаналізувати теоретичні основи когнітивного навантаження в перекладі і запропонувати стратегії мінімізації перевантаження на основі синтезованої інформації з когнітивної лінгвістики, психолінгвістики та когнітивної психології. У дослідженні подано огляд ключових моделей когнітивного навантаження, зокрема Теорії зусиль Деніела Гілла та Теорії когнітивного навантаження Джона Свеллера. Крім того, представлена структурована таксономія, яка чітко розрізняє внутрішнє, зовнішнє та доцільне, як джерела когнітивного навантаження. У статті також порівнюються різні стратегії зменшення навантаження, включаючи автоматизацію навичок, оптимізовану організацію робочого простору, CAT-інструменти, системи управління термінологією, а також практики релаксації та/або усвідомленості, що сприяють стабільності уваги та когнітивній витривалості. Наводяться педагогічні інтервенції, орієнтовані на навчання майбутніх перекладачів (стійкість, ефективність багатозадачності, стійкі когнітивні звички). Майбутні напрямки досліджень також підкреслюють цінні області для вивчення (наприклад, включення біометричних вимірювань у визначення когнітивного навантаження та розробка індивідуалізованих програм навчання на основі унікальних когнітивних здібностей). Дослідження показує, що когнітивне навантаження не є другорядним, а знаходиться в центрі уваги, впливаючи на точність, продуктивність, адаптивність та довгострокову стабільність продуктивності.

Ключові слова: *когнітивне навантаження, усний переклад, теорія зусиль, робоча пам'ять, автоматизація, інструменти CAT, управління часом, психологічна стійкість.*

The relevance of the research. Interpreting, regardless of form (simultaneous or consecutive), is one of the most cognitively demanding professions, placing intense demand on limited working memory resources. Interpreters simultaneously engage in processes of comprehension, decoding, information retention, searching for equivalents, switching between language systems, and producing the target text. The interaction of these steps results in a high cognitive burden, and when excessive cognitive load (critical) is present, the interpreting quality drops, the error rate increases, the speed is lowered, and, in the long term, labor burnout occurs (Григорович О. П., 2017, С. 136–140). One area in which high cognitive load is particularly present is simultaneous interpreting, where the time for processing information is minimal, and any delay and/or error can have serious consequences (Sweller J., 2011, P. 37–49). So the challenge is the theoretical basis, practical growth, and the development of effective approaches to intentionally minimize this load, ensure that interpreting productivity remains stable and of high quality, and protect the professional health of the specialist speakers. Solving this problem has both theoretical and practical relevance for interpreting didactics and professional development. The study is highly relevant, as there is a need to devise effective techniques to reduce errors arising from the limited resources available to the interpretor's working memory in simultaneous and consecutive interpreting contexts.

The question of cognitive load in interpreting has been of interest to many scientists for the past few decades. The central model in this area is the Effort Model outlined by Daniel Gile (Gile D., 1995, p. 157–170). Based on this model, simultaneous interpreting necessitates the sharing of cognitive effort among four main components (listening and analysis, production, short-term memory, and coordination). As the total effort resource is limited, Gile highlights that it exists

and must be fought for by all. The subsequent fundamental progression to interpreting studies was the development of Cognitive Load Theory (CLT) (Sweller, J., 2011, P. 37–49). An early proponent of educational psychology, John Sweller, CLT, distinguishes three types of cognitive load: Intrinsic Load (L_I), Extrinsic Load (L_E), and Germane Load (L_G). This gives insight into the difference between resources invested in the complexity of the task itself, in an inefficient environment, and in stable knowledge. The previous studies by F. Albrecht highlight the empirical measurement of cognitive load utilizing physiological and behavioral indicators (reaction time, eye movements, pupillary response, heart rate variability) (Albrecht F. W., 2021, P. 150–168). They demonstrated that increases in text complexity or speech rate are associated with higher physiological indicators of load. Neumann's recent article concentrates on the cognitive aspect of multitasking – the core of interpreting, especially simultaneous interpreting – and the need to come up with attention switching strategies (Neumann S., 2015, P. 200–215). In this research area, studies predominantly concentrate on the diagnosis and measurement of cognitive load, while other aspects of the problem remain less explored. Yet a comprehensive systematization or distinction between practical, specifically designed efforts to alleviate and control it in interpreting, across types, needs to be introduced. Notably, the influence of individual teaching methods on training the next generation of interpreters to reduce external and internal load via conscious attention management, and the influence of the psycho-emotional factor as an autonomous source of cognitive load, are not widely studied. This article aims to address this void.

The aim of the research is to systematically examine the theoretical bases of cognitive load in interpreting and to propose practical ways to minimize it, drawing on cognitive linguistics and psychology. This study provides a theoretical and applied analysis of cognitive load and formulates, classifies, and justifies a set of effective reduction strategies, focusing specifically on technological, psychological, and didactic approaches, as well as on the management of the psycho-emotional component of the load. To achieve this, the article overviews the most influential models of cognitive load (D. Gile's Effort Model and Sweller's Cognitive Load Theory), defines the different sources of load (internal, external, and germane), and provides a thorough treatment of reduction strategies, including skill automation, workspace optimization, use of specialized technologies (CAT tools and terminology management tools), time management, and psycho-emotional stability methods. A special focus is placed on didactic practices aimed at building resilience in future interpreters. Further research is needed to advance empirical approaches to measuring cognitive load using biometric indicators (e.g., oculography, heart rate) for an objective perspective, and to construct adaptation-based learning schemes tailored to individual cognitive ability profiles and specific interpreting demands.

The research studies have several **key tasks**:

– Providing a broad theoretical and applied background on cognitive load in interpreting, locating interpreting within dominant cognitive models (Gile's Effort Model and Sweller's Cognitive Load Theory), and understanding the internal, external, and relevant load components that impact interpreter performance;

– Designing and classifying a systematic set of cognitive load reduction strategies grounded in three domains: technological, psychological, and didactic, while focusing explicitly on psycho-emotional regulation for the stabilizing of the interpreter's cognitive abilities;

– Creating an automation-driven approach to intrinsic load reduction concentrating on proceduralizing linguistic skill, chunking, and subject-matter schematization as mechanisms that release working memory for subsequent, higher-order decision-making;

– Developing a technology-supported model to minimize extraneous load with terminology management systems, Translation Memory (TM), and post-editing workflows, and limit cognitive operations and thus increase interpreter efficiency;

– Introduction of a psychophysiological approach to emotional load management, with methods such as mindfulness, time-management systems, and self-monitoring as a source to assist the interpreter to notice early overload and to cope immediately;

– Design of a didactic framework for cognitive-resilience training, including scaffolding, simulation-based stress exposure, and the structured

design of compensatory strategies for relevant cognitive load to be optimized in interpreting education.

Presentation of the main research material. Interpreting, as a complex cognitive process, must maintain a delicate balance and trade-off among many subprocesses for limited working memory resources (Shreve G. M., 2010, P. 42–51).

Gile's effort model is most pertinent to interpreting, in which resources are allocated to four efforts. Once the overall effort exceeds the interpreter's total capacity $R_{\max}$, a failure occurs and information may be omitted or erroneous. Therefore, the purpose of this study was to conduct a theoretical and applied analysis of the phenomenon of cognitive load in interpreting and, based on that, to develop, classify, and justify a series of effective strategies aimed at reducing cognitive load, focusing mainly on technological, psychological, and didactic approaches and the psycho-emotional component of the load.

$$E_{total} = E_{LA} + E_P + E_M + E_C \leq R_{\max}$$

E_{LA} – listening/analysis effort, E_P – production effort, E_M – memory effort, E_C – coordination effort. Gile states load reduction is achieved by reducing the E requirements of each component. For instance, by mnemonic techniques (for E_M), automating articulation (for E_P) (Gile D., 1995, P. 163).

J. Sweller's Cognitive Load Theory (CLT*).* CLT presents a more in-depth classification of load sources that is relevant to creating targeted strategies:

– Internal load (L_I): For a task, this does not change. In interpreting, the structure is complex with multi-stage (synthesis-analysis-comparison). Reduction is only possible by increasing the interpreter's level of knowledge (forming cognitive schemas).

– External load (L_E): A result of inefficient design of the material or environment. An example is an inconvenient CAT tool interface or poor sound quality. Such a type of load must be minimized at all costs as it consumes resources.

– Germane (relevant) load (L_G): The useful load that supports the formation and automation of cognitive schemas. Interpreting training aims to maximize L_G at the expense of L_E.

The total cognitive load L_{total} can be expressed as:

$$L_{total} = L_I + L_E + L_G$$

An effective load management strategy should strive for $L_{total} \rightarrow L_I + L_G$, that is, aim to eliminate useless L_E (Sweller, 2011, P. 37–49).

Strategies for reducing intrinsic load are based on automation and schematization. This can only be done through the transformation of declarative knowledge into procedural knowledge, that is, via the automation of skills to reduce the burden of L_I on working memory.

Automation and chunking. In the first place, automation of cognitive functions and the modeling of chunking are basic strategies that are directly aimed at reducing the interpreter's intrinsic cognitive load (L_I) and are of particular relevance in the high-stakes environment of oral and simultaneous translation contexts. The core concept of automation is to turn routine tasks from controlled processing into automatic processing (Корунець І. В., 2003, P. 448). Compared to controlled processing, which are slow processes involving sustained active attention and require a great deal of working memory resource, automatic processing is quicker, unconscious, and low-resource. Transferred skills to the automatic level successfully free up scarce working memory resources – including memory and data – to focus on solving interpreting tasks that are less standard such as solving semantic ambiguities of complex semantics, making decisions about stylistic-based changes or conflicts that arise when multilayer tasking takes place.

Interpreting automation is used at two levels: lexical and syntactic.

– Lexical search automation is based on achieving a level of proficiency where the correspondence between the source language (SL) and the target language (TL) is automatic, almost automatic, and one does not need to cognitively search their inner lives or consider various possibilities. This pertains mainly to high-frequency vocabulary and fixed idioms. For instance, the activation of the fixed expression *взяти до уваги* (*to take into account*) should occur as a single, coherent process. Methodologically, this is done by overlearning, repeating pairs of equivalents over several instances in a setting to develop a stable (yet rapid) connection in long-term memory.

– Syntactic transformations are automated. The interpreting process does not often consist

of replacing words, but relies on repetitive interlingual modifications of the phrases both grammatically and syntactically to ensure that the target text is rendered natural and idiomatic. Take switching from the passive voice usually used in English (like "*The agreement was signed by the parties*" and "the parties signed") to the active voice or impersonal construction that is natural for Ukrainian ("*Сторони підписали угоду*"), as doing this would automatically break away grammatical rules that need to be consciously analyzed. This streamlining of transformations reduces the cognitive effort of regularly tracking grammatical correctness, directly improving the production effort (E_p).

Chunking is a process by which an interpreter clusters small pieces of information (words, numbers, or concepts) into larger, more coherent blocks of meaning, or chunks. This is vital in this sense, since the effective working memory of a human is very limited and consists, on average, of approximately 4 ± 1 independent elements (chunks).

If a interpreter views a lengthy terminological phrase as a single terminological chunk (as in *the World Health Organization's annual report on sustainable development*) then the working memory storage would be used only in one part for those chunks with long parts (which is the word segment), only using one working memory in place of a short and direct interpreting which would utilize the rest. This dramatically enriches successful memory.

The basis of good note-taking in consecutive interpreting is chunking; the interpreter never writes a record of a single word, but rather semantic cores (subjects, predicates, logical connections). This is how the concept of speech is preserved for longer and more accurately, thus reducing the amount of memory the E_M needs to conserve.

On this end, activating an entire chunk is faster than processing word by word, and in order to accomplish this, we require this capability, a direct requirement in simultaneous interpreting.

Automation and chunking are complementary: the more basic skills are transferred to automatic mode, the more resources are available for the effective formation and manipulation of complex semantic chunks in order to achieve high-quality interpreting productivity on short notice.

In-depth subject knowledge. Knowledge in subjects (e.g., economics, international law, clinical medicine) has turned out to be one of the most effective long-term strategies for reducing internal cognitive load (L_I). Essentially, this says that this knowledge enables the interpreter to anticipate what the underlying text (ST) will be about long before it is initially perceived. This prediction mechanism drastically reduces cognitive load, as expected information is absorbed more quickly by neural networks and requires fewer working memory resources than completely novel or surprising information.

Schema Formation is the big piece of the puzzle here. Subject knowledge is not memorised haphazardly, but rather structured in order of complexity into hierarchically organised, complex mental models known as schemas. A schema is a bundle of information about a subject or a specific event that is related to a particular entity. For instance, the court trial schema will include data on roles (judge, lawyer, prosecutor), the sequence of actions (hearing, questioning, verdict), and specific words. This schema is then fully activated. The interpreter interprets words in chunks to identify key concepts within the schema already known in one entity of the language, rather than decoding and translating words separately. This can translate concepts rather than words or phrases in this sense. Thus, the demand for costly, controlled information search and analysis in interpreting is greatly decreased, directly reducing the internal demand for L_I; the more mastery of the subject area, the more complete the schema and, at the same time, the less cognitive load to parse the text. It helps the interpreter allocate the rest of their limited cognitive resources on the stylistic features of the target text and to address genuinely unique linguistic issues.

Technological strategies for minimizing extrinsic load. Technologies directly influence LE by creating an optimal working environment and eliminating the need for non-targeted cognitive operations.

The requirement to search for high-level, frequent, or new words in the interpreting process itself is an old phenomenon that plays a substantial role as an extrinsic cognitive load (L_E). The consequence of this load is that it diverts cognitive resources from the main task – understanding and producing text. Terminology management

based on technology is a specific instrument capable of reducing L_E.

However, beyond these traditional terminology tools, recent developments in Artificial Intelligence (AI) have improved Automatic Speech Recognition (ASR), which has been adopted in assisting interpreters. ASR technology converts spoken language into text and can be presented as synchronous captioning during simultaneous interpreting (particularly in remote contexts). A strong tech intervention, this offers visual support alongside auditory input. Furthermore, captions generated by ASR have been shown to improve interpretability, especially with problem triggers such as numbers or different accents. Importantly, the integration of ASR within Computer-Assisted Interpreting (CAI) tools can raise the number rendition accuracy of the interpreters and lessen the cognitive load (Pisani & Fantinuoli, 2021, 181–197; Frittella F.M., 2021, P. 103–142).

Terminology databases (TBDs) are one of the main instruments in this strategy. The establishment and ongoing use of TBDs as a direct part of the interpreter's workflow (e.g., via a speed search or term recognition feature in CAT tools) dramatically alter the quality of the output. It eliminates the need for lengthy, multi-step searches in dictionaries, databases, or other sources through an instant keystroke or an automatic pop-up window with an implied equivalent (Chesterman A., 1997). This makes lexical selection for specialized units easier, freeing the interpreter from having to hold a fair amount of narrow terminology in working memory.

Online glossaries and interactive terminology tools are generally employed, especially in remote simultaneous interpreting (RSI), as part of interpreting. A digital gloss has become quite indispensable and can be accessed remotely from a separate tablet or directly from the RSI platform interface. That's important because the need to «switch attention» from listening and speaking to searching a paper or even a digital dictionary is a particularly sharp and often a dangerous jump in cognitive load. This allows the interpreter to make the most of their time and process information as quickly as possible, as the interpreter's optimized use of terms reduces the time needed to switch between terms.

A powerful intervention for reducing L_E in written translation, particularly in technical, legal, and text-heavy contexts where repetition can be high, is the successful application of computer-assisted translation (CAT) tools.

Translation Memory (TM). Translation Memory (TM) is a database that stores translation units, i.e., pairs of already translated segments (e.g., sentences or paragraphs). TM suits for eliminating L_E (for repeated, routine searching) by using translation. TM recommends matches during the interpreting of the chunk of the text:

– *100% Match*. If the interpreting matches exactly a unit in memory for the new part, the TM instantaneously places the interpreting. This completely removes the burden of lexical and grammatical production, as well as the decision-making process for that particular segment (Dragsted B., 2010, P. 487–504).

– *Half Match (Fuzzy Match)*. If the new segment only partly matches the current segment (one word is different), the TM recommends such a translation. This demonstrates the actual conversion of an inefficient external load (L_E – which would occur during reinterpreting) into a relevant load (L_G) – a cognitive effort useful for remediation and comparison learning.

This way, TM minimizes re-solving of linguistic problems that have already been solved and, in turn, preserves cognitive reserve to tackle unique or difficult passages of text.

Post-editing is the act of editing the machine-translated text (MT) of a draft provided. If MT and PE have the ability to shift the cognitive status of the interpreter's work, writing from scratch, the task becomes decoding and correction.

While the unique cognitive load profile of PE (quickly comparing and identifying errors in original and MT output) may relate to these tasks, this does not necessarily change the overall level of production effort. This applies particularly when working with high-quality texts in MT output or with predictable language (Krings H. P., 2019, P. 178–179). The effectiveness of this approach is that the interpreting process, typically the most resource-demanding, is already done by the machine. The last, crucial work – ensuring quality, coherence, and stylistic accuracy – requires the interpreter to focus on this task, freeing up working memory.

Psychophysiological strategies and emotional load management. Emotional stress (time pressure, responsibility, conflict) is a powerful external factor that effectively depletes the total cognitive reserve (R_{max}).

Under time pressure, L_E increases due to the need to constantly monitor speed, which distracts attention from the task at hand. Things like Pomodoro (25 minutes on, 5 minutes off) let you actively organize information entering your working memory, so it refreshes regularly. One can also apply the "Deadline as a Phase" principle. Rather than applying that pressure to the entire project at the end, divide large assignments into smaller chunks with mini-deadlines, sub-deadlines, or phases. Each iteration culminates in one small but also relatively real finish line (translate 10 pages, glossary of terminology, and interpret, etc.). This splitting does not feel as intimidating to work on, and it eliminates the emotional burden of the idea of large-scale work. In the effective phasing of work, one turns passive, oppressive pressure into an actively managed work rhythm.

Emotional stress (time pressure, responsibility, conflict) is a powerful external factor that effectively depletes the total cognitive reserve (R_{max}). Emotional stress is not merely a mental disorder, but a direct cognitive distraction that competes with interpreting processes for working memory resources. The stress-management strategies also help the interpreter increase their psycho-emotional stability and the level of their R_{max} (cognitive reserve) for the main task.

Mindfulness is arguably the most effective, proactive strategy that one could engage in. Numerous studies show that meditation practices and mindfulness practices increase flexible attention and emotional regulation in specialists (Жукова Н. П., 2020, С. 88–101). This is important for interpreting, so the interpreter can quickly let go of their response when a misunderstanding or a difficult moment occurs (frustration, panic, or any other emotion), and immediately re-emphasize the stream of incoming information instead. Hence, mindfulness practice prevents a spiral of errors driven by emotional stress, reducing the potential for emotional tension to eat away at the cognitive resources needed for additional work.

To explain the importance of this point, empirical research identifies Interpreting Anxiety and Lack of Confidence as significant negative predictors of interpreting performance. This moderation effect indicates that improving basic language skills represents a necessary form of anxiety management. But the emotional load needs to be addressed too – high levels of Intrinsic Motivation have been shown to be the strongest positive predictor of performance and sometimes outperforms linguistic proficiency, at least in certain contexts. This reinforces the need for intrinsic motivation, alongside mindfulness, to create a sustained commitment that resists the detrimental effects of anxiety-induced L_E (Xing X., 2025).

But more important are the self-control and self-monitoring strategies. This means developing the interpreter's ability to objectively assess their current cognitive state. The expert learns to recognize signs of impending overload, often relatively early or almost imperceptibly, such as physical tension (e.g., neck or jaw muscles), slowed reaction time, or increased errors in syntax or vocabulary. Whenever he or she detects these signs, the interpreter has to apply predetermined 'compensatory strategies' right away (Neumann S., 2015, P. 208). These strategies include tactical techniques such as summarizing, temporarily managing information by avoiding it, omitting less central details when required, or compressing conversation to *buy time*. The conscious application of such techniques provides the interpreter with control over the crisis situation. The use of conscious techniques not only preserves the quality of interpreting but also relieves psychological pressure, as the interpreter acts consciously rather than reflexively in the face of a cognitive crisis.

Didactic methods for cognitive resilience learning strategies. A well-thought-out approach to appropriate management of cognitive load

should be incorporated into the learning process, replacing L_E with L_G (relevant load).

– *Scaffolding.* The learner should begin with low L_I and L_E and gradually work their way up to a higher load, eventually reaching a point where basic skills become automatic. High intrinsic load cannot be experienced for students until they have developed automatic production.

– *Deliberate use of compensatory strategies.* Ways to respond to a load crisis, such as compression, paraphrasing, and generalization, in the case of simultaneous interpreting. This puts the interpreter in control of the situation, and that, in itself, reduces psychological stress.

– *Simulation training using simulated noise.* Constructing training scenarios with planned external stressors (poor sound, distractions) to develop the capacity to ignore L_E and concentrate on L_I and L_G (Максимчук М. П., 2019, С. 98–103).

These training conditions simulate authentic interpreting settings and promote the development of cognitive endurance, focus regulation, and stress management –key aspects of professional interpreter skills. Through deliberate exposure to controlled auditory disruptions, simulation training improves trainees' capacity to handle cognitive demands efficiently and maintain performance in challenging communication scenarios.

Conclusions and prospects for further research. Specifically, the research demonstrates that cognitive load is one of the greatest constraints on effective and quality interpreting, and an integrated mode of intervention is required.

The theoretical foundation offered in this paper recognizes that two major models, D. Gail's Theory of Effort and J. Sweller's Cognitive Load Theory (CLT), lead to diagnosing load, while also enabling interventions with the goal to purposefully reduce load by clearly identifying internal (L_I), external (L_E), and relevant (L_G) load. The central methodological conclusion is to prioritize automation: reducing internal load (L_I) can be achieved only by automating basic linguistic skills and schematizing subject knowledge, thereby freeing up limited working memory resources for higher cognitive operations. Furthermore, we know that technology plays a crucial role: in written translation, tools such as Translation Memory (TM), Terminology Databases (TBD), and Post-editing (PE) are key for reducing the external load (L_E) and enabling efficiency over time, but at a resource cost. Finally, an effective load management approach should be comprehensive, including linguistic, technological, and psychophysiological mechanisms that build the interpreter's resistance to emotional and time pressure.

The next research should aim to empirically verify the effectiveness of strategies. In many case studies, large-scale empirical work on the intervention was carried out using biometric indicators (e.g., oculography, particularly for visual tracking of time-to-fixation and pupillary responses, as well as heart rate variability). This allows us to determine to what degree each strategy, especially the psychophysiological options proposed, has an absolute and empirical effect on the interpreter's actual cognitive load in real time. One of the important areas is modeling hybrid processes, which entails further examination of the interpreter's cognitive profiles when adapting new-generation translation tools, with humans used alongside adaptive machine translation to identify new sources of load and appropriate techniques to reduce it. Moreover, didactic research is just as important as the purpose of developing a methodology to create adaptive training programs. These programs should establish a diagnosis of students' cognitive abilities and provide a customized set of training tasks to maximize useful relevant load (L_G) and minimize useless external load (L_E) in optimizing capacity utilization.

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