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TRANSFORMATION OF THE PROFESSIONAL MILITARY EDUCATION MODEL: CONCEPTUALISING THE UKRAINIAN COMBAT-PROVEN EDUCATION MODEL AS AN ADAPTIVE EDUCATIONAL SYSTEM

Summary. The study analyzes the prerequisites for the transformation of professional military education in the context of a highly dynamic contemporary operational environment and the accumulation of unique combat experience by the Armed Forces of Ukraine. A contradiction has been identified between the need to maintain the regulatory consistency, systemic coherence, and interoperability of professional military education and the requirement to rapidly update its content in response to changes in the character of warfare. The conceptual foundations of the Ukrainian Combat-Proven Education Model (U-CPEM) as an adaptive educational system integrating normative-institutional, instructional-processual, and experiential-adaptive domains have been defined. The role of After Action Review (AAR) and the Lessons Learned (LL) process in transforming combat experience into structured educational content has been clarified. The traditionally dominant logic of professional military education and the adaptive logic of U-CPEM have been compared across sixteen criteria. The principles of adaptability, cyclicity, integration, operational relevance, and decentralisation of professional

knowledge have been identified. A structural and functional framework for the interaction of the model's elements has been developed. It has been substantiated that standardisation and adaptability should not be regarded as mutually exclusive approaches but rather as complementary mechanisms for ensuring the quality and operational relevance of professional military education. The limitations of the model associated with contextual dependence, fragmentation, the need for verification, and the potential rapid obsolescence of combat experience have been generalised. Directions for further empirical validation of U-CPEM have been proposed.

Keywords: professional military education; combat experience; adaptive educational system; After Action Review; Lessons Learned; Systems Approach to Training; quality assurance; interoperability; officer education.

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DEVELOPING SPEECH FLUENCY IN UNIVERSITY ENGLISH CLASSROOMS: THE COMMUNICATIVE AND COGNITIVE DIMENSION

Introduction. This article explores the shift in modern foreign language (FL) education from strict linguistic accuracy to oral speech fluency and impromptu communication. Specifically, it highlights a common “fluency gap” or cognitive freeze (“brain lock”) where university students with a high level of written proficiency experience “cognitive bottlenecks” – the temporary overload of working memory and

mental resources – during spontaneous academic discourse. To address this issue, the study introduces a holistic approach prioritizing strategic methodological pedagogical scaffolding, and circumlocution strategies to lower students' affective filters and smooth their transition to advanced FL expertise.

The primary objective of this study is to bridge the cognitive-physical disconnect in FL acquisition by establishing a comprehensive framework aimed at dismantling the articulatory bottleneck. With this in view, it seeks to provide university language instructors with a multi-tiered learning framework – the 5-dimensional fluency model – and applied physiological and cognitive training strategies that transform students from “dictionaries-in-progress,” developing target-language lexicon, into adaptive and flexible global communicators.

Methods. The research utilizes a blend of theoretical modeling, cross-disciplinary synthesis (combining cognitive linguistics, neurobiology, and pragmatics), and applied pedagogical methodologies.

Results. The article delineates how speech fluency relies on a rapid synchronization of brain structures (such as Broca’s area, Wernicke’s area, and the basal ganglia) with emotional safety and social confidence. It culminates in a structured theoretical-practical framework for articulatory synchronization, which aligns specific fluency barriers to targeted classroom interventions. The obtained results of the research demonstrate that shifting the classroom paradigm from an “accuracy-first” to a “fluency-first” approach optimizes students’ working memory, conditions physical speech organs, and drastically reduces a cognitive-motor lag.

The originality of the chosen approach lies in defining linguistic fluency not just as verbal velocity, but as an interactive biological, emotional, and social system. The study bridges abstract cognitive processes with physical biomechanics, treating the vocal apparatus as a physical instrument that requires muscle memory and neuromuscular conditioning. It redefines fluency in professional teacher-training by establishing that interactional repair mechanisms and strategic competence are more critical for perceived fluency in academic discourse than absolute lexical precision.

Implications for further research. Future research can explore how the cognitive buffer created by automated fluency directly protects budding educators from over-instruction and occupational burnout. Besides, a definitive methodological roadmap emerges to study the long-term empirical effects of integrating autonomous digital tools, speech shadowing, and AI oral “sparring partners” as a mandatory part of the university FL curriculum. Further studies can also investigate how this framework scales when training students to navigate highly unpredictable, real-time intercultural communication.

Keywords: speech fluency; 5-dimensional fluency model; cognitive bottleneck; articulatory dexterity; psychological-affective regulation; strategic competence; circumlocution strategies; pedagogical scaffolding.

Introduction. This paper focuses on the issue of enhancing foreign language (FL) fluency among students of pedagogical universities. It seeks to analyze the phenomenon of “fluency” from five consecutive dimensions and design a corresponding model that delineates the trajectory of fluency from

cognitive foundations to communicative execution.

The Theoretical Framework

In contemporary FL university classrooms, the definition of *fluency* is undergoing a significant evolution. It is no longer viewed merely as the absolute absence of pauses, but rather as the smooth, continuous, and effortless flow of speech, alongside the ability to navigate complex academic and social landscapes with linguistic flexibility. Developing genuine speech fluency relies on the rapid, real-time coordination of cognition, vocabulary, and physical articulation (Lennon, 2000, p. 26).

Fluency is categorized into three major dimensions (Segalowitz, 2010):

1. Cognitive fluency: the efficiency and automaticity of the brain’s underlying speech planning processes.

2. Utterance fluency: the observable, physical properties of speech (speed, pausing, hesitations).

3. Perceived fluency: the evaluation of the speaker’s flow of speech.

However, a widespread incongruity is frequently observed in tertiary education contexts: while highly proficient in written assessments and possessing a vast store of declarative grammar knowledge, numerous university students experience a distinct cognitive freeze or “brain lock” during spontaneous interactive discussions. This “fluency gap” may indicate a temporary overload of working memory and mental resources during academic discourse. To properly address this issue, FL pedagogy must look at spontaneous speech not just as an analytical task, but as an interactive biological, emotional, and social system where the vocal apparatus serves as a physical instrument requiring neuromuscular conditioning.

The theoretical foundations of speech fluency are multi-layered, combining cognitive linguistics, neurobiology, and pragmatics. Whether an individual is learning a new language or refining their native communication, scholarly consensus establishes four *core pillars* underlying fluent oral production (Lennon, 2000; Kormos, 2006, 2015; Coutinho dos Santos, 2022):

1. Continuity: how smoothly sounds, syllables, and words are connected without unnatural hesitations or frequent starts and stops.

2. Rate: the speed at which speech occurs, which must be paced appropriately for the listener to easily understand.

3. Semantic chunking: the ability to instantly pull vocabulary and syntactic structures from the brain to express complex

ideas naturally, rather than translating word-for-word.

4. Automaticity: focusing on the content and the listener's reaction, not the physical act of formulating words.

To contextualize fluency development in tertiary education, a baseline distinction must be made between everyday performance hesitations and clinical speech pathologies. It is completely normal for everyone to occasionally experience minor disfluencies like using pause fillers ("um", "uh", "well"), repeating words, or briefly pausing to collect thoughts (Coutinho dos Santos, 2022, p. 3–4). However, when disruptions in the natural rhythm, speed, flow and ease of speech become too frequent or severe enough to impact communication, they may indicate a *language fluency disorder*. It commonly manifests through two primary conditions, which imply different speech patterns (Logan, 2014, p. 3–6):

1. Stuttering (stammering): characterized by involuntary repetitions of sounds, syllables, or words, prolongations of sounds, and "blocks" where sound gets entirely stuck.

2. Cluttering: characterized by a rapid, erratic or irregular speech rate that results in jumbled, disorganized, and sometimes unintelligible speech with excessive revisions and fillers.

Speech fluency during FL production is jointly mediated by affective barriers and processing limitations, wherein communicative anxiety and emotional distress actively deplete the finite cognitive resources required for real-time linguistic execution (Horwitz et al., 1986; Sweller, 1988; MacIntyre, Gardner, 1994). The most impactful *factors* here are:

– speaking anxiety: fear, or panic when anticipating having to talk, especially in public settings;

– emotional strain: feelings of frustration, embarrassment, or low self-esteem;

– cognitive load: forcing the brain to allocate mental resources to handle complex thinking, memory retrieval, or emotional stress.

It is widely accepted that speech production requires navigating three main *stages* (Levelt, 1989, p. 9):

1) conceptualization (determining what to say);

2) formulation (selecting appropriate vocabulary and grammar);

3) articulation (physically executing speech).

Within this framework, the most significant influence on fluency in FL learning is the speaker's *level of language proficiency* (Kormos, 2006):

a) low language proficiency: speakers must expend conscious mental energy on formulation. Heavily relying on declarative knowledge, they slowly synthesize explicit grammar rules and search for individual words, which creates a massive cognitive bottleneck;

b) high language proficiency: the brain bypasses active formulaic construction through procedural automaticity. Vocabulary and complex syntactical structures are retrieved instantly, reducing the cognitive load during formulation and allowing full focus on the message during conceptualization.

Contemporary empirical research demonstrates a strong correlation between these proficiency-driven cognitive shifts and specific dimensions of speech fluency (Kormos, Dénes, 2004; Segalowitz, 2010; Skehan, 2009; Tavakoli, Wright, 2020):

1. Speed fluency (*strong positive impact*): proficient speakers maintain a significantly higher speech rate and produce longer runs of words between pauses.

2. Breakdown fluency (*moderate negative impact*): as proficiency increases, the frequency and duration of silent and filled pauses drastically decrease. Lower-proficiency speakers pause more frequently and utilize long, misplaced pauses because they lack immediate syntactic structures during the formulation stage.

3. Repair fluency (*weak negative impact*): while proficient speakers still make errors, they rely less on mid-sentence self-corrections, false starts, and exact word repetitions.

These temporal variables – speed, breakdown, and repair – reveal how efficiently a speaker can conceptualize and formulate language. Yet, once the brain has eliminated these cognitive obstacles, the linguistic data must still pass through the final stage of physical execution: *the articulatory bottleneck* (Levinson, 2000, pp. 27–30).

This physiological and cognitive limit dictates that rapid, parallel mental thoughts must be slowed down and compressed into the narrow, linear physical movements of the speech organs, as the serial process of producing speech simply cannot keep up with the speed of internal language processing. To navigate this bottleneck, speaking must be conceptualized as one of the fastest and most complex motor behaviors in the human body, predicated on *muscular dexterity*. This specialized dexterity represents the ability to coordinate muscle groups, sensory systems, and the nervous system to perform precise, efficient, and adaptive bodily movements – a capacity highly evident in speech production, which requires the rapid, precise coordination

of over 100 respiratory, laryngeal, and orofacial muscles, in particular (Bernstein, 1996, p. 13–19; Luque-Jiménez, 2023, p. 206–208):

Respiratory control: the diaphragm and chest muscles must provide steady, sustained breath support to power the voice.

Laryngeal articulation: the intrinsic laryngeal muscles must rapidly adjust tension and airflow to alternate between voiced and unvoiced sounds.

Orofacial synergy: the lips, cheeks, and tongue require rapid, minute adjustments to shape consonants and vowels.

In FL acquisition, the articulatory bottleneck arises when a learner's cognitive capability to formulate utterances outpaces their physical, neuro-muscular ability to execute those sounds smoothly. While a native speaker's vocal tract functions on pure muscle memory, a FL learner must consciously manage the physical production of speech. This bottleneck manifests through four distinct psycholinguistic *mechanisms* (Levelt, 1989; de Bot, 1992; Major, 2001; Ullman, 2001):

1. *The clash between declarative knowledge and motor control*: because conscious neurological processing is inherently slow, the physical vocal apparatus stalls while waiting for the motor cortex to calculate the exact physical placement required for the foreign sound.

2. *Negative transfer of the native language motor habits*: the learner's vocal organs automatically try to default to the native language muscle movement. Overriding this deeply ingrained physical habit requires active physical effort, which substantially reduces the articulation rate (the speed of speech excluding pauses).

3. *Syllable structure and phonotactic constraints*: every language has unique rules governing how vowels and consonants can be combined (phonotactics). The speech organs literally get “stuck” trying to transition rapidly between multiple consecutive consonant postures. To cope, the articulatory system either inserts extra vowels (epenthesis), drops sounds (elision), or extensively decelerates the physical movement to avoid a mechanical breakdown.

4. *Neurological resource overload*: according to cognitive models of bilingual speech, the brain has a finite amount of working memory and processing power. Because linguistic formulation demands nearly the entirety of the learner's cognitive capacity, there are insufficient processing resources left to dedicate to fine motor control. The physical delivery system suffers, leading to a sudden

drop in articulation speed, physical stumbling over words, or muscle tension.

For instance, when students encounter English, their physical organs of speech experience serious difficulties in terms of preparation. These *difficulties* are caused by (Levinson, 2000; Kormos, 2006; Luque-Jiménez, 2023):

Unfamiliar phonological markers: major articulators build muscle memory based on the native tongue, e.g., English contains sounds like the interdental fricatives (/θ/, /ð/), the post-alveolar approximate (/r/), and a massive inventory of 12–15 vowels that force muscles into foreign shapes, causing physical fatigue.

The co-articulation curve: speech is a flowing stream where sounds mash into one another. The muscles must be trained to transition between sounds smoothly without stumbling.

Brain-to-muscle lag: when neurological pathways are unaccustomed to English, a cognitive-motor lag occurs, forcing a halting, syllable-by-syllable rhythm. An internal thought outpaces its motor (physical) vocalization by an average of 4–5 times, and at peak cognitive loads, up to 10 times. This phenomenon is explained by the fact that mental speech (internal monologue) is free from physical limitations of the articulatory apparatus. Internal monologue does not require motor coding or muscle contraction.

Lack of breath support: coordinating the airflow from the diaphragm with the precise movements of the mouth to deploy stress patterns, intonation, and the unaccented “schwa” (/ə/) requires deep physical conditioning.

Given this evidence, it can be seen that the articulatory bottleneck represents a motor execution constraint: the cognitive system has successfully completed linguistic processing (lexical selection and syntactic encoding), but the speech motor-control pathways lack the automation and neural efficiency required in a target language to execute verbal output at a standard speech rate.

While the mechanics of this speech-rate constraint are understood, practical, multi-level teaching frameworks to bridge this cognitive-physical gap are currently lacking in tertiary FL instruction.

The goal of the article. This study is aimed at bridging the cognitive-physical gap in FL acquisition by creating a comprehensive methodological framework for addressing the articulatory bottleneck. Besides, the article seeks to provide university educators with a structured, multi-level teaching paradigm – the 5-dimensional fluency model – and applied physiological and cognitive training strategies

that transform students from static, self-conscious “dictionaries-in-progress” into adaptive and fluent communicators.

Methods. The methodology of this research utilizes a synergetic blend of theoretical modeling, cross-disciplinary synthesis (integrating cognitive linguistics, neurobiology, and pragmatics), and applied pedagogical interventions.

To demonstrate the practical viability of the suggested framework, literary texts – specifically, excerpts from Erich Segal’s novel *Love Story* – were implemented as foundational training materials. These texts serve as a specialized pedagogical tool to help students bridge literary analysis, translation-free semantic chunking, and real-time speech production within a university classroom environment.

The 5-Dimensional Fluency Model

Results. Linguistic fluency within professional teacher-training cannot be reduced to a singular, linear metric of verbal velocity. Instead, it operates as a highly complex, multi-tiered system where biological, emotional, and social systems interact in real time. We propose a comprehensive, 5-dimensional model that traces fluency from its internal, biological roots to external, professional applications. The model exposes such aspects of fluency as: Neurophysiological → Psychological-Affective → Communicative → Socio-Linguistic → Pedagogical.

The neurophysiological aspect of fluency is concerned with cognitive architecture, brain mechanisms, and neural efficiency under real-time constraints. It marks the transition from controlled processing (effortful monitoring of grammar and vocabulary) to automatic processing (low metabolic and mental cost) (Kormos, 2006, p. 26–29).

Speech fluency relies on a highly integrated network of cortical and subcortical brain structures that convert abstract thoughts into synchronized muscle movements. These structures incorporate:

Broca’s area: located in the left inferior frontal gyrus, this region acts as a primary command center, translating conceptual thoughts into precise motor sequences.

Wernicke’s area: situated in the left posterior temporal lobe, it manages the comprehension and processing of language, ensuring word selection aligns with intended meaning.

Supplementary motor area and anterior cingulate cortex: the brain’s executive conflict monitor, error detector, and cognitive traffic controller responsible for initiating speech, regulating tempo, and suppressing unwanted vocalizations.

Basal ganglia: located deep within the brain, it plays a crucial role in chunking syllables and automating habitual, sequential motor behaviors to create fluid rhythm.

Sensorimotor pathways (dorsal and ventral streams): the dorsal stream translates auditory speech targets into articulatory movements, while the ventral stream maps those sounds to meaning. Simultaneously, auditory feedback loops listen to one’s own voice, making instantaneous micro-adjustments to pitch and rhythm.

Ultimately, this aspect relies on the *proceduralization of knowledge* (shifting language from declarative memory to implicit procedural memory via the basal ganglia and prefrontal cortex), thereby optimizing working memory, minimizing cognitive load, and maximizing articulatory agility (Kormos, 2006, p. 26–29).

The psychological-affective aspect of fluency is deeply tied to the speaker’s emotional state and is governed by S. Krashen’s Affective Filter Hypothesis (Krashen, 1985, p. 30). The core mechanism here presumes cognitive ease, emotional security, and social confidence (Luque-Jiménez, 2023, p. 201–203). When the prefrontal cortex operates without an information choke point, communication transitions from an analytical task to an automated flow. This dimension is driven by three *pillars* (Krashen, 1985, p. 30–32; Coutinho dos Santos, 2022, p. 5):

1. *High self-efficacy and low affective filter:* cognitive mastery removes the friction of constant self-monitoring, while low anxiety prevents stress from blocking executive functions, allowing the brain to allocate energy to message content rather than self-doubt.

2. *Deep intrinsic motivation and flow state:* driven by an autotelic desire to connect rather than a fear of external judgment, the speaker experiences a balance of challenge and skill, allowing the basal ganglia to smoothly execute verbal routines without a conscious strain.

3. *Autonomic regulation and emotional safety:* high vagal tone maintains a calm alertness, preventing the amygdala from triggering a “fight-or-flight” response, which preserves the cognitive capacity needed for physical articulation.

The communicative aspect of fluency views it through the lens of pragmatics, social interaction, and discourse strategy. Its core mechanism is the ability to initiate, maintain, and adapt speech within dynamic social interactions. The key features of this aspect include (Lennon, 2000, p. 27–29; Coutinho dos Santos, 2022, p. 4–5):

Strategic use of pauses: placing pauses naturally at clause boundaries rather than

mid-phrase, and utilizing natural fillers (“you know”, “well”, “I mean”, “so”, “anyway”, “right”, “look”, “kind of”, “sort of”, “basically”, “in a way” ...) to keep the floor.

Reactive authenticity: spontaneously and appropriately responding to unpredictable conversational turns by decoding subtle cultural codes, idioms, and tones.

Coherence and cohesion: seamlessly organizing speech logically so that the listener can follow the train of thought effortlessly across extended discourse.

The socio-linguistic and intercultural aspect of fluency looks upon it as context-driven and context-dependent: true professional fluency requires adapting the flow of speech to cultural and social conventions and expectations, prioritizing communicative intent over grammatical precision. When interacting across boundaries, the brain shifts from an analytical “editor mode” to an adaptive “negotiation mode”. The socio-linguistic and intercultural side of fluency delineates (Nakatani, 2006, p. 157–159; Luque-Jiménez, 2023, p. 204–205):

Strategic competence and interactional repair: utilizing compensatory strategies like circumlocution or gestures to bypass vocabulary gaps, and using repair mechanisms to rephrase statements without halting the conversation.

Sociolinguistic pragmatics: demonstrating register flexibility through fluid code-switching (e.g., shifting from academic rhetoric to casual informal badinage) and contextual awareness.

Intercultural communicative competence: deploying empathy, perspective-taking, and ambiguity tolerance to remain calm when cultural cues or idioms are uncertain.

Relational alignment and interactional synchrony: co-constructing meaning as a collaborative duet, adapting pacing, pauses, and turn-taking to match the cultural rhythm of the partner.

The pedagogical aspect of fluency transforms it into a professional instrument used to shape a supportive learning environment. The core mechanism here is the deliberate application of language fluency to manage classroom dynamics, model authentic behavior, and facilitate comprehension. This aspect encompasses (Kormos, 2006, p. 141–144; Vovk, 2005, p. 112–116; Vovk, 2017, p. 82–84; Budnyk et al., 2021a, p. 11–13; Budnyk et al., 2021b, p. 14–17):

Classroom discourse management: giving clear, spontaneous instructions, instantaneous reformulation of complex concepts, and providing immediate, nuanced feedback.

Linguistic scaffolding: consciously adapting speech rate and lexical complexity to match

the students’ current proficiency zone without losing natural intonation.

Professional resource allocation: because neurophysiological fluency is automated, the teacher redirects their active attention away from *how* to speak and toward monitoring students, managing behavior, and handling digital or physical teaching tools.

Thus, the proposed 5-dimensional fluency model (fig. 1) demonstrates that linguistic fluency in professional teacher training is a holistic, non-linear phenomenon that transcends mere verbal velocity. By tracing the continuum from neurophysiological automation and psychological-affective emotional safety to communicative strategic discourse, socio-linguistic contextual adaptation, and pedagogical classroom management, the model illuminates how these subsystems interact in real time. Ultimately, the proceduralization of language at the neural and affective levels acts as a critical cognitive enabler; by minimizing the cognitive load associated with real-time linguistic formulation and spontaneous conceptual restructuring, it successfully optimizes the allocation of the teacher’s attentional resources. This cognitive optimization allows educators to pivot away from the mechanics of speech and redirect their active focus toward strategic pedagogical scaffolding, classroom dynamics, and relational alignment, thereby transforming personal linguistic competence into a powerful professional instrument.

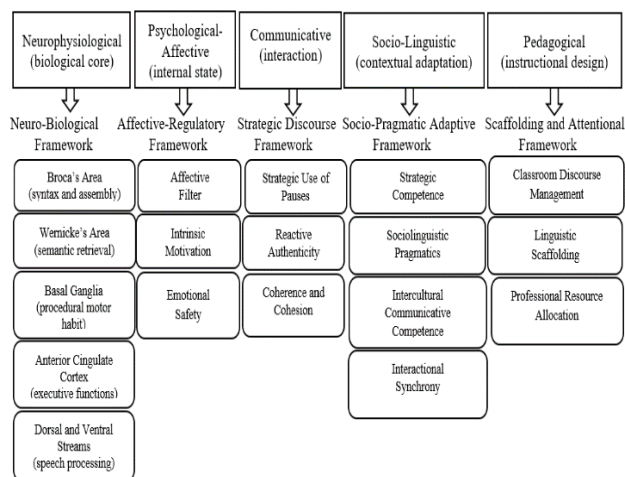


Figure 1. The 5-Dimensional Fluency Model

Applied Methodological Training Strategies in English Language Instruction.

It is logical to assume that to bridge the gap between thought and sound, FL instructors should treat the vocal apparatus as a physical and cognitive instrument whose functioning can be significantly improved through systematic training deploying such core training strategies:

1. Oral motor warm-ups (articulatory gymnastics)

Before engaging in complex communicative tasks, students should isolate and stretch the specific muscle groups required for English phonetic structures, for instance (Logan, 2014, p. 188–191):

- the mirror check: students utilize individual hand mirrors to visually monitor their lip rounding, jaw drop, and tongue placement, pairing visual feedback with *proprioception* – the internal somatosensory awareness of mechanical muscle positioning and tissue tension within the vocal tract;

- the pucker and smile: students forcefully pucker their lips into a tight circle (holding for five seconds to activate the *orbicularis oris* muscle, essential for /w/ and /u:/) and rapidly alternate to a wide, stretched smile (holding for five seconds for the unrounded /i:/);

- tongue sweep and lift: students trace the roof of their mouths with the tip of their tongues, moving from the soft palate forward to the alveolar ridge to build the vertical tongue lift required for English alveolar consonants (/t/, /d/, /l/, /n/).

2. Resistance training: syllable drills and “the pencil trick”

Students can obstruct their articulators to build neuromuscular reflexes utilizing such techniques as (Sussman, 1980, p. 422):

- the pencil bite: students hold a clean pencil horizontally between their premolars while attempting to read an English text aloud with maximum clarity. This mechanical obstruction forces the tongue tip, lateral margins, and lips to exert greater muscular effort. Upon removal, students experience an immediate increase in articulatory lightness: this phenomenon is driven by neuromuscular hyper-compensation, wherein the motor cortex temporarily maintains an elevated level of muscle-activation signaling, resulting in an effortless, hyper-precise delivery of target-language phonemes;

- fast-twitch syllable workouts: students practice high-speed alternating syllable transitions using contrasting phonetic environments to build agility, such as alternating bilabial/velar plosives ([pa-ka-pa-ka] → [ka-pa-ka-pa]) or alveolar/velar positions ([ta-ka-ta-ka] → [ka-ta-ka-ta]).

3. Target-specific tongue twisters

To be methodologically effective, tongue twisters must stretch speech organs into unfamiliar shapes and target specific phonetic friction points, for example:

- the sibilant and interdental challenge (/s/, /z/ vs. /θ/, /ð/): “*The seething sea ceaseth, and thus the seething sea sufficeth us*” (this forces rapid alternation between the alveolar ridge and interdental protrusion) (Dundes, 1999, p. 19);

- the liquid consonant challenge (/r/ vs. /l/): “*A loyal warrior rarely worries about literal rulers*” (this trains the tongue to alternate swiftly between a lateral airflow and a retroflex/bunched shape) (Gick et al., 2006, p. 340);

- the labiodental vs. bilabial challenge (/v/ vs. /w/): “*Vivian viewed wary walrus walking very vigorously*” (Bradlow et al., 1997, p. 2305);

- instructional progression: students must begin at a slow, deliberate tempo, progressively accelerating only when muscle movements are fully coordinated (McNeil et al., 2007, p. 200).

4. Advanced cognitive and communicative frameworks

In contemporary FL pedagogy, cognitive and communicative frameworks represent a paradigm shift that unifies thought processes with real-world language use. Rather than treating grammar and vocabulary as isolated memory sets, these modern frameworks treat the human brain as a dynamic processing system, where fluency is defined as an efficient coordination of cognitive fluency (mental processing speed) and utterance fluency (the actual tempo and rhythm of speech). Cognitive and communicative frameworks embrace (Coutinho dos Santos, 2022, p. 6–9; Huang, Liu, 2022, p. 114–117):

- the 4–3–2 fluency technique (time-compressed articulation): this technique physically accelerates the rate at which the entire neuro-linguistic system must transition between phonological streams, bypassing the analytical “editor mode”, for instance:

- students give a spontaneous monologue on a topic for 4 minutes;

- they switch partners and deliver the exact same content in 3 minutes (eliminating systemic hesitations);

- then they switch a final time to compress the core message into 2 minutes, forcing rapid, fluid execution of long lexical chunks;

- the shift from “accuracy-first” to “fluency-first” paradigm: creating a low-stakes learning environment (designed to de-couple performance from negative consequences like poor grades, public embarrassment, or academic penalties) through unscripted classes and improvised debates rather than

pre-written presentations to lower the affective filter (Coutinho dos Santos, 2022, p. 11–13);

– strategic competence and circumlocution drills: teaching students compensation strategies (“talking around” a concept using familiar vocabulary) so they can negotiate meaning seamlessly when a specific term is temporarily lost (Nakatani, 2006, p. 160–162);

– pragmatics and academic hedging: teaching tone management (shifting registers) and tentative language and “hedging” conventions (modal auxiliary verbs: *may, might, could, would* ...; lexical verbs: *suggest, appear, seem, assume, tend to* ...; epistemic adjectives and adverbs: *hypothetical, probable, typical, likely, conceivably, presumably, relatively, inherently* ...; approximators of quantity, frequency, and degree: *approximately, roughly, somewhat, a large majority of, to a certain extent* ...; introductory phrases: *from this perspective..., according to current frameworks..., the evidence seems to indicate that..., it must therefore be recognized that..., the indications are therefore that..., thus, it could be concluded that..., the evidence seems to be strong that..., on this basis it may be inferred that..., given this evidence, it can be seen that* ...) so students can actively participate in academic discourse with appropriate sociolinguistic politeness (Vovk, 2025, p. 137);

– the digital “shadow” curriculum: integrating autonomous fluency tools – such as AI as a low-anxiety oral “sparring partner”, podcasts, and speech shadowing techniques – as mandatory self-study components (Huang, Liu, 2022, p. 119–122).

The suggested pedagogical interventions demonstrate that transitioning from a fragmented view of the English language acquisition to an integrated approach that simultaneously targets the physiological and mental dimensions of speech is essential for overcoming the articulatory bottleneck. By combining muscle-targeted physical interventions with time-compressed cognitive drills and strategic sociolinguistic training, this methodology systematically transforms language production from a slow, hyper-monitored task into an automated, low-stakes flow. Treating the vocal apparatus as both a physical and cognitive instrument successfully liberates the educator’s constrained attentional capacity. This structural optimization allows teacher-trainees to smoothly bypass real-time linguistic formulation difficulties, effectively shifting their cognitive load capacity away

from basic phonetic execution and toward active classroom discourse management, empathetic student interaction, and adaptive instructional scaffolding. The systemic interaction of physical conditioning and cognitive optimization is visually mapped in the Articulatory Bottleneck Matrix (Fig. 2).

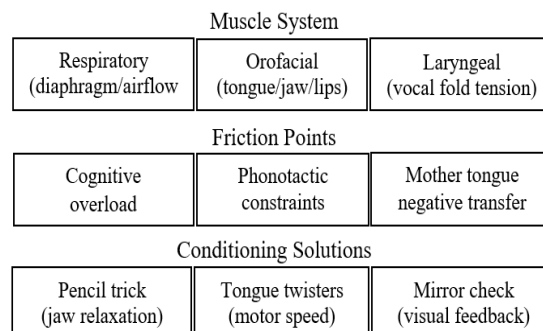


Figure 2. The Articulatory Bottleneck Matrix

The Comprehensive Pedagogical Framework.

To unify the above physiological, psychological, and cognitive interventions into a structured instructional model, Table 1 outlines a multi-dimensional holistic approach to dismantling the articulatory bottleneck in the English language.

Table 1
Theoretical-Practical Framework
for Articulatory Synchronization

Fluency barrier	Theoretical ground	Pedagogical objective	Classroom intervention
Cognitive bottleneck	<i>Buffer overload</i>	Synchronize fast inner speech with motor output.	Timed summarization: reducing time limits to force “economical” speech.
Articulatory rigidity	<i>Mother tongue interference</i>	Reset the vocal apparatus to the English “neutral” position.	The schwa reset: drills focusing on the relaxed /ə/ as the foundation of flow.
Phonetic heaviness	<i>Hyper-articulation</i>	Transition from word-by-word delivery to rhythmic “chunks”.	Thought grouping: using slash marks (/) in texts to mark natural pauses and linking.
Lagging retrieval	<i>The affective filter</i>	Automate “repair strategies” when a specific word is lost.	Circumlocution drills: describing complex academic concepts without using the term.
Input-Output gap	<i>The output hypothesis</i>	Use auditory input to “pull” the physical organs into rhythm.	Shadowing: instantaneous mimicry of native academic speakers.

Practical Implementation of the Suggested Methodological Framework.

In order to exemplify the strategies employed to enhance university students’ English fluency, the excerpts from E. Segal’s *Love Story* are used. This allows students to bridge literary analysis, translation-free semantic chunking, and real-time speech production. The related activities are instantiated below:

1. The 30-second phonological sprint

The text focus: the opening of Segal’s *Love Story*:

“What can you say about a twenty-five-year-old girl who died? That she was beautiful.

And brilliant. That she loved Mozart and Bach. And the Beatles. And me."

Objective: to target the articulatory bottleneck by mastering the deliberate prosody, breath support, and staccato rhythm of Segal's syntax.

How it works: students use hand mirrors to observe their orofacial synergy during the crisp stop consonants (/b/ in *beautiful*, *brilliant*, *Bach*, *Beatles*).

The sprint: students must deliver this excerpt in one continuous, controlled diaphragmatic breath, maintaining perfect emotional intonation without letting the abrupt punctuation cause unscripted hesitation. They analyze how Segal's syntactic fragmentation (*"And the Beatles. And me."*) requires precise cognitive-motor timing to sound natural rather than robotic. By practicing with Segal's minimalist, fragmented syntax, students learn to treat punctuation marks not as cognitive stops that invite hesitation, but as deliberate prosodic pauses designed for diaphragmatic reset and proactive phrase-planning.

2. Philological taboo: deconstructing *Love Story*

The text focus: the overarching themes of class division ("old money" vs. immigrant working class), the psychological weight of paternal expectations, and the minimalist portrayal of tragedy in Segal's *Love Story*.

Objective: to bypass the analytical "editor mode" and build strategic competence using advanced literary and sociological concepts.

How it works: instead of standard vocabulary, the "Taboo" cards feature major literary and thematic motifs from the novel, e.g., a student must explain the concept of *"The Barrett Lineage"* or *"Pre-Destino Dynamics"* without using the words *Harvard*, *Oliver*, *money*, *father*, *rich*, or *prestige*.

Students are forced into an adaptive "negotiation mode," using rapid circumlocution protocols to define complex psychological and socio-cultural states within a strict 60-second window.

3. The hedging conventions: debating Segal's style

The text focus: the polarized critical reception of *Love Story* – often debated between commercial sentimentality (melodrama) and brilliant, sparse, minimalist storytelling.

Objective: to automate the rapid deployment of academic hedging markers (*presumably*, *arguably*, *appears to indicate*, *displays a tendency to*, *looks as though*, *on closer inspection* ...) during spontaneous literary critique.

How it works: students are divided into academic panels to debate a provocative

thesis: *"Segal's deceptively simple, colloquial prose style is not a lack of depth, but a deliberate linguistic strategy to mirror the immediacy of youthful passion and the defense mechanism of humor against grief."*

Students must argue on their feet, but every single claim must be mitigated with precise academic hedging tools. A student cannot say, *"Oliver's hockey playing is a sign of aggression"*, – instead, they must say, *"Oliver's athletic pursuits arguably manifest a tendency to externalize patriarchal pressure through physical sublimation"*. This trains the brain to manage real-time academic discourse with high sociolinguistic sophistication.

4. The 3-2-1 narrative compression: bypassing the translation filter

The text focus: a rich narrative scene, such as Oliver and Jenny's witty, sharp, rapid-fire banter in the library from *Love Story*.

Objective: to eliminate systemic performance hesitations and train students in rapid semantic chunking of narrative structures.

How it works: students read a designated 2-page scene from the novel.

Round 1 (3 minutes): student A synthesizes the narrative action, the subtext of the dialogue, and the characters' psychological motivations to student B.

Round 2 (2 minutes): switching to student C, they must deliver the same analysis, forcing them to shed structural filler words (*"um," "uh," "well" ...*) and rely on pre-fabricated lexical chunks.

Round 3 (1 minute): switching to student D, they compress the entire stylistic essence of the scene into 60 seconds. This shifts their mental energy from effortful vocabulary searching to automated, high-tempo delivery.

5. The AI dialogue shadow: stepping into the text

The text focus: high-stakes character interactions and ideological clashes from *Love Story*.

Objective: to create a low-risk and safe, autonomous digital environment where students can practice stylistic adaptation, register shifting, and repair fluency.

How it works: as part of their digital "shadow" curriculum, students open an audio-based AI tool and assign it a specific, highly charged persona from the novel.

Persona A: *"Act as Oliver Barrett III, defending the family's old-money legacy and corporate expectations to your son."*

Persona B: *"Act as Jenny Cavilleri, using your characteristic sharp, witty, and slightly mocking conversational style (calling people 'preppie') to challenge Oliver's elite worldview."*

Students engage in an unscripted, real-time verbal battle. They must adapt their

register to match the historical and social status of the character, forcing the brain to manage immediate syntactic formulation and pragmatic appropriateness under conversational pressure.

When the sessions are over, the teacher concludes by asking the students a meta-cognitive question: “During which activity did you feel your brain shift completely away from translating from your native language and fully into the automated flow of English thought?”

Conclusion. To summarize, the way from “formed thoughts” in the inner consciousness to “fluent explication” is not merely a linguistic bridge, but a comprehensive psychological and physiological synchronization. As this article has demonstrated, university students’ struggle with oral proficiency is rarely a lack of declarative knowledge, but a functional disconnection between the cognitive speed of conceptualization and the motor rigidity of the speech organs.

By moving beyond the traditional, correction-centric focus on grammatical accuracy and embracing the 5-dimensional fluency model – anchored by strategic competence, articulatory resets, and autonomous digital tools – it is possible to effectively dismantle the articulatory bottleneck and achieve muscular dexterity. The intersection of these dimensions forms an invaluable cognitive buffer that directly protects teacher-trainees from instructional retardation and professional burnout.

The indications are therefore that it is time to stop viewing the language learner as a “dictionary-in-progress” and start viewing them as a “communicator-in-training” empowered to contribute their unique intellect to the global academic stage.

Further implications. The automated fluency cultivated through the suggested multi-dimensional framework creates an invaluable cognitive buffer. Future research may empirically explore how this cognitive buffer directly protects budding educators and teacher-trainees from real-time instructional inertia and occupational burnout during early career classroom management.

Additionally, there is a clear path forward to investigate the long-term, longitudinal empirical effects of integrating autonomous digital tools, speech shadowing, and interactive AI oral “sparring partners” as a mandatory, credited component of the university FL curriculum. Finally, further studies may also evaluate how this framework scales when training advanced students to navigate the highly unpredictable, emotionally charged contexts of real-time intercultural communication across diverse professional boundaries.

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РОЗВИТОК СПОНТАННОГО АНГЛІЙСЬКОГО МОВЛЕННЯ У ЗАКЛАДАХ ВИЩОЇ ОСВІТИ: КОМУНІКАТИВНИЙ ТА КОГНІТИВНИЙ ВІМІРИ

Анотація. У статті розглянуто перехід в університетській освіті від парадигми забезпечення жорсткої мовної коректності до вільного і спонтанного володіння іноземною мовою (ІМ), що сприяє швидкості та плавності усного мовлення. Логічно це передбачає розвиток у студентів стратегічної компетентності – здатності використовувати вербальні та невербальні стратегії для подолання комунікативних бар'єрів. Зокрема, висвітлено поширений «розрив у вільному мовленні» або «когнітивне гальмування», коли студенти ЗВО з високим рівнем письмового володіння ІМ стикаються з «когнітивними обмеженнями» – тимчасовим переважанням робочої пам'яті та ментальних ресурсів – під час спонтанного академічного дискурсу. Когнітивні обмеження є наслідком надмірного розумового навантаження, яке гальмує подальше опрацювання вхідних даних, а також природні межі утримання тимчасових даних у свідомості та максимальну кількість зосередженості, яку людина може продемонструвати одночасно. Для вирішення цієї проблеми дослідження пропонується холистичний підхід, у пріоритеті якого є стратегічні ризики подолання комунікативних бар'єрів, педагогічні інтервенції та парадигми стратегії комунікативної корекції, щоб знизити афективний фільтр студентів та полегшити їхній перехід до поглибленого володіння ІМ.

У дослідженні припущено, що інтегрування парадигм стратегій комунікативної корекції, які забезпечують здатність описувати явище або концепт, коли конкретний термін не відомий, є важливим для досягнення вільного володіння ІМ. На ґрунті аналізу педагогічних інтервенцій або навчального підкріплення, що мають у пріоритеті комунікативну неперервність мовлення над лексичною і граматичною коректністю, у статті стверджується, що сприяння

«стратегічному ризику» – готовності студента використовувати незнайомі мовні моделі, здогадуватися про значення слів та випробовувати комунікативні стратегії, попри страх зробити помилку – значно зменшує афективний фільтр і прискорює перехід від середнього до просунутого рівня володіння ІМ.

Основною метою цього дослідження є подолання когнітивно-фізичного розриву в оволодінні ІМ шляхом створення комплексної рамкової методики навчання мови для усунення «обмежень» в артикуляції. Означена методика прагне надати викладачам університетів багаторівневу навчальну структуру – 5-вимірну модель вільного мовлення – та прикладні фізіологічні й когнітивні стратегії навчання, які перетворюють студентів із «ментальних словників, які розвиваються» на адаптивних, глобальних комунікаторів.

Методи. Дослідження використовує поєднання теоретичного моделювання, міждисциплінарного синтезу (що інтегрує когнітивну лінгвістику, нейробіологію та прагматику) та прикладних педагогічних методологій.

Результати. У статті окреслено, як плавність і спонтанність мовлення залежить від швидкої синхронізації структур мозку (таких як зона Брока, зона Верніке та базальні ганглії) з емоційною безпекою та соціальною впевненістю, що є важливим для іноземомовного спілкування. Статтю завершено структурованою теоретико-практичною основою для артикуляційної синхронізації, яка узгоджує специфічні бар'єри плавності з цілеспрямованими педагогічними інтервенціями на заняттях з ІМ. Результати проведеного дослідження демонструють, що перехід від підходу «точність на першому місці» до підходу «плавність на першому місці» оптимізує робочу пам'ять, формує

органи мовлення та різко зменшує когнітивно-моторне гальмування.

Наукова новизна дослідження полягає у визначенні мовної плавності та спонтанності не лише як вербальної швидкості, а й як комплексної інтерактивної біологічної, емоційної та соціальної системи. Дослідження поєднує когнітивні процеси з фізичною біомеханікою, розглядаючи голосовий апарат як фізичний інструмент, що вимагає м'язової пам'яті та нервово-м'язового регулювання. Це переосмислює поняття вільного володіння ІМ у професійній підготовці майбутніх викладачів, встановлюючи, що механізми інтерактивного відновлення та стратегічна компетентність є важливішими для вільного володіння ІМ в академічному дискурсі, ніж абсолютна лексична точність і коректність.

Перспективи подальших досліджень. Майбутні студії можуть бути спрямовані на те, як когнітивний буфер, створений автоматизованим вільним володінням ІМ, безпосередньо захищає майбутніх педагогів від

навчального гальмування та професійного вигорання. Існує чіткий шлях для вивчення довгострокових емпіричних результатів інтегрування автономних цифрових інструментів, спостереження за мовленням суб'єктів пізнання та усних «спаринг-партнерів» за допомогою штучного інтелекту як обов'язкової частини навчального процесу. У подальшому науковці можуть дослідити, як запропонована модель масштабується під час навчання студентів орієнтуватися в непередбачуваний міжкультурний реальний комунікації.

Ключові слова: вільне володіння іноземною мовою; 5-вимірна модель плавності мовлення; когнітивна обмеженість; артикуляційна вправність; психолого-афективна регуляція; стратегічна компетентність; парафразові стратегії комунікативної корекції; педагогічні інтервенції.

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GAME-BASED METHOD IN LEARNING ENGLISH FOR SPECIFIC PURPOSES BY FUTURE SPEECH THERAPISTS

Abstract. Introduction. Learning English for Specific Purposes (ESP) is becoming an integral part of the professional training of future specialists. The goal of educators is to find methods and approaches to motivate and increase interest in studying the discipline. One of the methods that contributes to achieving the set goals is the game-based method. Games used in education are specifically designed for educational purposes or that have additional educational value. Educational games used in ESP classes aim to develop students' different language and speaking skills, as well as develop guessing skills, creativity, teamwork, critical thinking, etc.

The purpose of the study is to substantiate the effectiveness of using the game-based method when learning ESP, to study the opinions of scientific and pedagogical staff and students regarding educational games and their application in the educational process, to design the content of a course on ESP for students of Speech Therapy education programme and a set of educational games aimed at developing language and speech skills, guessing and creative skills and expanding knowledge about the world, their country, their city, and everyday problems of life.

Methods. The research was conducted by studying literary sources on the topic, particularly, the game activity and the game method, conducting a survey of scientific and pedagogical staff and students in the form of a questionnaire concerning educational games, attitudes to them, the use of the

games in learning different courses, game forms, elements and effectiveness, studying the curriculum of the "Speech Therapy" educational program.

Results. The study shows the scientific and pedagogical staff, in general, use the game method of teaching with varying frequency, believe that game methods motivate and increase the interest of students in studying the discipline, reducing their level of anxiety. A significant part of teachers prefers business games, team games, noting that educational games can be used when studying various academic disciplines, while not attaching much importance to game elements. The vast majority of students note various advantages of educational games, prefer quizzes or guessing games, see a positive impact of game elements on motivation to learn better, prefer team (group) games, think that educational games do not interfere with the serious perception of the academic discipline, and would like the game method to be used when learning ESP.

Originality. The results of the research and survey were considered when designing a textbook and creating a set of educational games.

Conclusion. The educational games specially designed for educational purposes or have additional educational value. Learning a foreign language by students of special education is of particular importance, since the future professional activities of speech therapists quite often include game activities and the use of various types of games to achieve therapeutic goals. The proposed educational group