ПСИХОЛИНГВИСТИКА

THE IMPORTANCE OF REGULAR MILITARY PRACTICAL TRAINING IN TRANSITIONING MILITARY COMMAND SENTENCES FROM COGNITIVE STIMULUS TO REFLEXIVE ACTION SIGNAL

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Annotation. ***T****he process of transforming military command sentences from cognitive stimuli into reflexive action signals is a fundamental aspect of effective military communication and discipline. Regular military practical training plays a crucial role in this transformation by strengthening the connection between auditory perception, cognitive processing, and immediate physical response. Through repetitive drills and situational simulations, soldiers internalize commands to the extent that their reactions become automatic, reducing hesitation and enhancing coordination during real-time operations. This process is deeply rooted in psycholinguistic and neurolinguistic mechanisms, where language functions as both a cognitive code and a behavioral trigger. The efficiency of command execution depends on the degree of familiarity and repetition embedded in training routines. Consequently, consistent practice transforms verbal commands into conditioned reflexes, ensuring speed, accuracy, and synchronized action among units. The theoretical significance lies in understanding how linguistic stimuli, reinforced by habituation, evolve into automatic motor responses.*

Keywords: *Cognitive stimulus, reflexive action, military training, command sentences, psycholinguistics, habituation, reflex conditioning, communication efficiency.*

ВАЖНОСТЬ РЕГУЛЯРНОЙ ВОЕННОЙ ПРАКТИЧЕСКОЙ ПОДГОТОВКИ В ПРЕОБРАЗОВАНИИ ВОЕННЫХ КОМАНДНЫХ ПРЕДЛОЖЕНИЙ ИЗ КОГНИТИВНОГО СТИМУЛА В РЕФЛЕКТОРНЫЙ СИГНАЛ К ДЕЙСТВИЮ

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Аннотация. *Процесс преобразования военных командных предложений из когнитивных стимулов в рефлекторные сигналы к действию является фундаментальным аспектом эффективной военной коммуникации и дисциплины. Регулярная военная практическая подготовка играет ключевую роль в данном процессе, укрепляя связь между слуховым восприятием, когнитивной обработкой и непосредственной физической реакцией. Благодаря повторяющимся тренировочным упражнениям и ситуационным моделированиям военнослужащие настолько внутренне усваивают команды, что их реакции становятся автоматическими, что сокращает время колебаний и повышает координацию в условиях реальных операций. Этот процесс глубоко укоренён в психолингвистических и нейролингвистических механизмах, где язык функционирует как когнитивный код и как поведенческий триггер. Эффективность выполнения команд зависит от степени знакомости с ними и уровня повторяемости, заложенной в тренировочные процедуры. Таким образом, систематическая практика*

преобразует вербальные команды в обусловленные рефлексы, обеспечивая скорость, точность и синхронность действий внутри подразделений. Теоретическая значимость заключается в понимании того, как языковые стимулы, усиленные привычностью, трансформируются в автоматические моторные реакции.

Ключевые слова: *когнитивный стимул, рефлекторное действие, военная подготовка, командные предложения, психолингвистика, привычивание, рефлекторное обусловливание, эффективность коммуникации.*

HARBIY BUYRUQ GAPLARINI KOGNITIV STIMULDAN REFLEKSIV HARAKAT SIGNALIGA AYLANTIRISH JARAYONIDA MUNTAZAM HARBIY AMALIY MASHG‘ULOTLARNING AHAMIYATI

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Annotatsiya. *Harbiy buyruq gaplarini kognitiv stimullardan refleksiv harakat signallariga aylantirish jarayoni samarali harbiy kommunikatsiya va intizomning asosiy omillaridan biridir. Muntazam harbiy amaliy mashg‘ulotlar ushbu jarayonda muhim rol o‘ynaydi. Ular eshituv idroki, kognitiv qayta ishlash va darhol jismoniy javob o‘rtasidagi bog‘liqlikni mustahkamlaydi. Takroriy mashqlar va vaziyatli simulyatsiyalar orqali harbiy xizmatchilar buyruqlarni shu darajada ichki ongiga singdiradiki, ularning reaksiyalari avtomatik xarakter kasb etadi, bu esa ikkilanishni kamaytirib, real operatsiyalar vaqtida muvofiqlashtirishni kuchaytiradi. Bu jarayon psixolingvistika va neyrolingvistika mexanizmlariga chuqur bog‘langan bo‘lib, unda til ham kognitiv kod, ham xulqiy trigger vazifasini bajaradi. Buyruqlarni bajarish samaradorligi mashg‘ulotlarda shakllangan tanishlik darajasi va takrorlanish chastotasiga bevosita bog‘liq. Natijada muntazam mashqlar og‘zaki buyruqlarni shartli reflekslarga aylantiradi, bo‘linmalar o‘rtasida tezlik, aniqlik va sinxron harakatni ta’minlaydi. Ushbu jarayonning nazariy ahamiyati shundaki, til stimullari odatlanish orqali qanday qilib avtomatik motor reaksiyalariga aylanishini yaxshiroq tushunish imkonini beradi.*

Kalit so‘zlar: *kognitiv stimul, refleksiv harakat, harbiy tayyorgarlik, buyruq gaplar, psixolingvistika, odatlanish, refleks shartlashuvi, kommunikatsiya samaradorligi.*

The battlefield presents one of the most cognitively demanding environments known to human experience. In combat situations, soldiers must process multiple simultaneous threats, maintain situational awareness, coordinate with team members, and execute commands while experiencing extreme physiological and psychological stress (Grossman & Christensen, 2008). Under these conditions, the difference between survival and casualty often measures in milliseconds, making the speed and accuracy of response to military commands a critical determinant of operational success. Traditional military training has long recognized the importance of drill and repetitive practice, dating back to ancient military formations and continuing through modern armed forces worldwide. However, the scientific understanding of why such training proves effective has evolved considerably with advances in neuroscience, cognitive psychology, and motor learning theory. Contemporary research reveals that regular practical training fundamentally alters how the brain processes and responds to military commands, transitioning these commands from complex cognitive stimuli requiring conscious interpretation to reflexive action signals that trigger immediate, automatic responses. This transformation from cognitive to reflexive processing represents a critical adaptation that enables soldiers to function

effectively under combat stress. When commands require conscious cognitive processing, they compete for limited attentional resources with other battlefield demands, creating delays and increasing error potential (Kahneman, 1973). Conversely, when commands trigger reflexive responses through well-established neural pathways, soldiers can execute actions rapidly and accurately while maintaining cognitive capacity for tactical decision-making and threat assessment. The purpose of this article is to examine the theoretical foundations and practical implications of transitioning military command sentences from cognitive stimuli to reflexive action signals through regular practical training. Schneider and Shiffrin (1977) distinguished between controlled and automatic processing, describing two fundamentally different modes of information processing in the human cognitive system. Controlled processing requires attention, operates within the limits of short-term memory, and processes information serially. This type of processing characterizes novice performance and the learning of new tasks. In contrast, automatic processing operates without attention, imposes minimal load on cognitive resources, and can process multiple streams of information in parallel. The transition from controlled to automatic processing occurs through extensive and consistent practice. Shiffrin and Schneider (1977) demonstrated that automatic processing develops when individuals consistently respond to specific stimuli in specific ways over many repetitions. In the military context, this means that commands which initially require conscious interpretation and deliberate response can, through sufficient repetition, become triggers for immediate automatic action. This transformation proves particularly valuable in combat situations where cognitive resources are severely taxed by multiple competing demands. Kahneman's (1973) attention theory further illuminates this process by conceptualizing cognitive capacity as a limited resource that must be allocated among competing tasks. When command execution requires controlled processing, it draws heavily on this limited capacity, reducing resources available for other critical functions such as threat detection, situational awareness, and tactical decision-making. However, when commands trigger automatic responses, they impose minimal cognitive load, preserving capacity for these higher-level functions. This preservation of cognitive resources can prove decisive in combat situations where soldiers must simultaneously respond to commands, monitor their environment, and adapt to rapidly changing tactical situations. The physical execution of military commands involves not only cognitive processing but also complex motor sequences. Fitts and Posner's (1967) classic three-stage model of skill acquisition provides a framework for understanding how regular practical training develops the motor components of command execution. The cognitive stage involves conscious attention to movement components and requires significant mental effort. The associative stage sees the development of more fluid movement patterns as connections between components strengthen. Finally, the autonomous stage is characterized by highly efficient, automatic execution requiring minimal conscious attention. Military practical training aims to progress soldiers through these stages for all essential combat skills and responses. In the cognitive stage, a recruit hearing "Take cover!" must consciously process the command's meaning, decide on an appropriate response, and deliberately execute the movement. With regular practice, soldiers enter the associative stage, where the command increasingly triggers smoother, more coordinated movements requiring less conscious direction. Ultimately, extensive practical training produces autonomous-stage performance, where the command immediately triggers a rapid, fluid dive to cover executed with minimal cognitive involvement. Schmidt's (1975) schema theory of motor learning provides additional insight into how practical training develops flexible, adaptable responses rather than rigid, context-specific actions. According to this theory, practice develops generalized motor programs—abstract representations that can be adapted to specific situations

through parameterization. Yerkes and Dodson's (1908) law describes an inverted-U relationship between arousal and performance, suggesting that moderate stress can enhance performance but extreme stress impairs it. Combat situations typically produce arousal levels well into the impairing range, where they significantly degrade performance of tasks requiring controlled processing. However, automatic processes demonstrate greater resistance to stress-induced performance decrements (Beilock & Carr, 2001). This differential vulnerability to stress explains why regular practical training proves so critical for military effectiveness. Commands that require cognitive processing become increasingly difficult to execute accurately as stress levels rise, with soldiers experiencing slowed reaction times, increased error rates, and even complete performance breakdown under extreme pressure. In contrast, reflexive responses developed through extensive training remain relatively intact even under severe stress, enabling soldiers to execute critical actions when cognitive function is compromised. Meichenbaum's (1985) stress inoculation training theory suggests that exposure to progressively increasing stressors during training can increase resistance to stress effects during actual operations. When military practical training incorporates realistic stressors—time pressure, physical fatigue, simulated threats, and noise—it not only develops reflexive responses but also conditions these responses to function under combat-representative conditions. This stress inoculation strengthens the neural pathways underlying reflexive command responses, making them more resistant to disruption under operational stress. Understanding the neural mechanisms underlying the transition from cognitive to reflexive command processing illuminates why regular practical training proves so effective. Modern neuroscience reveals that learning and automatization involve substantial changes in brain structure and function, with different neural systems dominating during controlled versus automatic processing. Initially, when soldiers learn to respond to new commands, execution relies heavily on prefrontal cortex regions involved in executive control, working memory, and conscious decision-making. This controlled processing engages the dorsolateral prefrontal cortex for planning and sequencing actions, the anterior cingulate cortex for monitoring performance and detecting errors, and the medial temporal lobe for retrieving declarative knowledge about proper responses (Anderson, 1982). This network operates relatively slowly, requires significant metabolic resources, and demonstrates vulnerability to disruption from stress, fatigue, and competing cognitive demands. Through regular practical training, command processing gradually transitions to relying on different neural systems. The basal ganglia, particularly the striatum, become increasingly involved as responses become more automatic (Yin & Knowlton, 2006). The basal ganglia excel at learning through repetition and forming stimulus-response associations that operate largely outside conscious awareness. As practice continues, cortico-striatal loops develop that enable rapid, automatic execution of learned responses with minimal involvement of prefrontal executive systems.

This neural transition manifests in several observable changes. Neuroimaging studies show that brain activation patterns change substantially as skills become automatic, with reduced activation in prefrontal regions and increased activation in motor cortex, cerebellum, and basal ganglia (Poldrack et al., 2005). These changes reflect a shift from effortful, attention-demanding processing to efficient, automatic execution. Additionally, the motor representations themselves become more refined and efficient, with sharper, more distinct activation patterns in motor cortex corresponding to specific movements. The cerebellum plays a particularly important role in developing the temporal precision required for effective military responses. This structure specializes in timing control and motor coordination, enabling the development of smooth, precisely timed action sequences (Ivry & Spencer, 2004). Regular practical training strengthens cerebellar representa-

tions of command-action relationships, enabling increasingly rapid and coordinated responses. This cerebellar involvement proves especially important for complex military maneuvers requiring precise timing and coordination among multiple muscle groups. Long-term potentiation (LTP) and synaptic plasticity mechanisms underlie the strengthening of neural connections through training. Each time a soldier practices responding to a command, synaptic connections in the relevant pathways strengthen through LTP, making future activation of these pathways easier and more efficient (Bliss & Collingridge, 1993). With sufficient repetition, these pathways become so strongly established that command perception immediately triggers the associated response with minimal activation threshold. This synaptic-level adaptation represents the fundamental mechanism by which training creates reflexive action signals from cognitive stimuli. The most fundamental requirement for developing reflexive responses is extensive repetition. Research consistently demonstrates that automatization requires hundreds or thousands of practice repetitions before responses become truly automatic (Schneider & Shiffrin, 1977). Military training programs must therefore incorporate sufficient repetition to drive this transition, recognizing that limited practice may produce familiarity without achieving true automaticity. Consistency in the stimulus-response relationship proves equally critical. Automatic processing develops most effectively when specific stimuli consistently elicit specific responses. Variable or inconsistent pairings prevent the development of strong associations and maintain reliance on controlled processing. Military training must therefore ensure that commands consistently map to appropriate responses, avoiding contradictory training that might confuse or weaken developing associations. Effective training follows a progressive structure that builds from basic to complex skills. Initially, training should focus on developing automatic responses to individual commands and basic movements. As these foundational responses become reflexive, training can progress to more complex sequences and combined maneuvers. This progressive approach prevents cognitive overload and ensures that each component reaches automaticity before being integrated into more complex actions.Part-task training, where complex skills are broken into components for separate practice, can facilitate this progression. Soldiers might first practice individual elements of a tactical movement sequence until each becomes automatic, then practice combining these elements into integrated maneuvers. This approach allows focused repetition on each component while building toward complex performance. Realistic practice conditions prove particularly important for ensuring that reflexive responses developed in training will function effectively in operational contexts. Training that incorporates authentic stressors—time pressure, physical fatigue, realistic threats, environmental challenges, and uncertainty—helps develop stress-resistant automatic responses. This realistic training also promotes stress inoculation, conditioning soldiers to maintain performance under combat-representative arousal levels. Feedback plays a crucial role in skill development, helping soldiers refine their responses and correct errors before incorrect patterns become automatized. Immediate feedback proves most effective, allowing rapid correction and preventing reinforcement of inappropriate responses (Magill, 2001). Military training should incorporate mechanisms for providing rapid, specific feedback on response accuracy, timing, and execution quality. However, as responses approach automaticity, feedback should be gradually reduced to avoid creating dependence on external guidance. This fading of feedback helps ensure that automatic responses can execute independently when external feedback is unavailable, as is often the case in combat. Additionally, regular maintenance training is essential for preserving reflexive responses over time. Without practice, even well-established automatic responses can decay, gradually requiring more cognitive involvement. The difference between a one-second and three-second response to "Take cover!" may

literally determine whether a soldier survives incoming fire. By minimizing the cognitive resources required for command execution, reflexive responses preserve mental capacity for higher-level functions. Soldiers can maintain situational awareness, monitor multiple information streams, adapt to changing circumstances, and make tactical decisions while simultaneously executing commands. This cognitive preservation proves essential in complex combat environments where soldiers must process vast amounts of information and make critical decisions under severe time pressure. Combat stress severely impairs controlled cognitive processing but has less effect on automatic processes. Soldiers operating with reflexive command responses can therefore maintain effective performance even under extreme stress that would otherwise cause significant performance degradation. This stress resistance enhances survivability and mission effectiveness, enabling continued operations under conditions that might incapacitate soldiers relying on controlled processing. When all team members respond reflexively to commands, unit coordination improves dramatically. Synchronized, immediate responses to commands enable complex tactical maneuvers requiring precise timing and coordination. This synchronization proves particularly important for small-unit tactics where team members must coordinate movements, provide covering fire, and execute complementary actions. Reflexive responses eliminate the variable reaction times associated with controlled processing, enabling more predictable and coordinated team performance. Once basic command responses become reflexive, they can serve as building blocks for learning more complex skills. Soldiers can focus cognitive resources on learning new, complex maneuvers while executing component actions automatically. This hierarchical skill structure enables more efficient training progression and the development of sophisticated tactical capabilities. Controlled processing is inherently more error-prone than automatic processing, particularly under stress. Reflexive responses, once properly developed, execute with high consistency and accuracy. This reliability reduces errors that could compromise mission success or endanger personnel. Well-trained reflexive responses also demonstrate greater resistance to interference from distractions and competing tasks. Developing true automaticity requires extensive repetition over extended periods. Military organizations must balance the time and resources required for this training against other demands and priorities. Financial constraints, equipment availability, range access, and personnel time all potentially limit training quantity. Organizations must carefully allocate resources to ensure sufficient training for critical skills while acknowledging that not all skills can receive equal emphasis. Highly automatic responses risk becoming rigid, potentially leading to inappropriate responses when situations differ from training scenarios. Military training must balance developing reflexive responses with maintaining cognitive flexibility and tactical adaptability. This requires incorporating sufficient variation in training and periodically engaging conscious reflection on when automatic responses are appropriate versus when situation-specific adaptation is required. Soldiers vary considerably in how quickly they develop automatic responses. Factors including prior experience, cognitive abilities, motor learning capacity, and stress resilience all influence training progression. Training programs must accommodate these differences while ensuring all personnel achieve minimum standards for critical reflexive responses. This may require individualized training approaches or extended training for some personnel. Without regular maintenance, even well-established reflexive responses can decay over time, gradually requiring more cognitive involvement. Military units must implement maintenance training programs to preserve critical reflexive capabilities. However, determining optimal maintenance training frequency and duration presents challenges, as research provides limited specific guidance for military-relevant skills. While realistic training enhances transfer, significant differences between training and combat environments can affect whether

reflexive responses developed in training will execute effectively in actual operations. Factors including the psychological impact of genuine mortal threat, unanticipated environmental conditions, and novel tactical situations may disrupt trained responses. This requires moving beyond sterile training environments to scenarios incorporating time pressure, physical demands, simulated threats, uncertainty, and other combat-representative stressors. While safety considerations necessitate some limitations, training should approach operational conditions as closely as safely possible. Training should continue well beyond initial skill acquisition to promote over-learning and establish robust reflexive responses. Additionally, regular maintenance training programs should be implemented to preserve critical reflexive capabilities. Training calendars should allocate specific time for maintenance of previously mastered skills, not only introduction of new capabilities. The importance of reflexive response development justifies substantial investment in training infrastructure and technologies that enhance training effectiveness. Simulation technologies, realistic training environments, and advanced training aids can provide cost-effective supplementation of live training, enabling increased repetition and varied scenarios. However, technology should augment rather than replace live training, as physical practice remains essential for motor learning. Training assessment should explicitly evaluate whether soldiers have developed truly reflexive responses rather than merely demonstrating controlled performance of trained skills. Assessment methods should incorporate time pressure, stress induction, and cognitive loading to determine whether responses function automatically under challenging conditions. Training programs should continue until reflexive performance is achieved, not just competent controlled performance. Military organizations should support ongoing research examining training methods for developing reflexive responses, optimal training and maintenance frequencies, individual difference accommodation, and transfer effectiveness. This research should employ rigorous methodologies including neurophysiological measures, performance assessment under varied conditions, and longitudinal tracking of skill retention. Evidence-based training policy requires continued expansion of the empirical foundation.

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