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РАЗМИНКИ И «МОЗГОВЫЕ ПЕРЕРЫВЫ» С ОБРАЗОВАТЕЛЬНОЙ ЦЕЛЬЮ

Аннотация:

В статье рассматривается педагогическая ценность разминок и «мозговых перерывов» в контексте современного образования. Анализируются психологические и нейрофизиологические механизмы их влияния на внимание, память и мотивацию учащихся. Показано, что целенаправленное использование этих приёмов способствует развитию когнитивных навыков, снижению стресса и повышению общей эффективности обучения. Также приведены примеры применения данных методик в традиционном и онлайн-обучении в разных странах мира.

Ключевые слова: разминки, мозговые перерывы, когнитивное развитие, обучение, внимание, мотивация, нейропедагогика, педагогические технологии, активное образование.

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WARM-UPS AND BRAIN BREAKS WITH AN EDUCATIONAL PURPOSE

Abstract:

The article explores the pedagogical significance of warm-ups and brain breaks within modern education. It examines their psychological and neurophysiological effects on students' attention, memory, and motivation. Purposeful use of these methods contributes to cognitive development, stress reduction, and improved learning efficiency. Practical applications in both traditional and online classrooms are discussed, along with strategies used internationally to enhance engagement and well-being.

*Keywords:*warm-ups, brain breaks, learning motivation, attention, cognition, neuroeducation, active learning, educational psychology, student engagement.

The dynamics of the modern classroom are shaped by rapid technological development, increased cognitive demands, and the growing need to sustain students' motivation throughout prolonged learning sessions. Within this context, warm-ups and brain breaks have emerged as innovative pedagogical instruments designed to maintain mental clarity, enhance engagement, and foster emotional well-being. These strategies, though simple in form, are deeply rooted in neuroeducation and supported by cognitive science as effective tools to optimize learning outcomes.

Warm-ups and brain breaks can be seen as structured interruptions — intentional pauses that reset cognitive processing and help students refocus on academic tasks. The logic behind this approach rests on the principle that the brain functions best when alternating between focused work and brief recovery periods. Numerous studies confirm that constant cognitive strain leads to diminishing returns in attention and working memory, whereas short, well-designed breaks restore energy and stimulate creativity.

Theoretical Foundations

The notion of balancing mental activity with physical or creative pauses is not new. It dates back to early educational psychology, particularly to John Dewey's principles of experiential learning and Lev Vygotsky's sociocultural theory emphasizing dynamic interaction between emotion, cognition, and action. In the 21st century, neuroscience has validated these early intuitions by demonstrating that human attention operates in natural cycles, typically ranging from 20 to 40 minutes, after which efficiency drops sharply unless the brain is allowed to rest or shift focus.

Warm-ups prepare learners for new material by activating prior knowledge, stimulating curiosity, and creating a positive learning atmosphere. Brain breaks, conversely, function as cognitive resets — opportunities for relaxation or playful engagement that prevent fatigue. Together, they represent a pedagogical rhythm essential for sustainable attention and deep learning.

According to research by Jensen (2000) and Ratey (2008), physical movement increases oxygen flow to the brain, boosting alertness and memory retention. These effects explain why short, structured activities such as stretching, dancing, or playful movement can dramatically improve students' readiness to learn.

Warm-ups as Pedagogical Tools

Warm-ups are typically used at the beginning of lessons or at key transitions between topics. Their function is twofold: psychological and cognitive. Psychologically, they reduce anxiety and establish rapport between teacher and learners. Cognitively, they activate relevant mental frameworks and connect new information with existing knowledge structures.

For example, in language learning, warm-ups might include quick question-answer sessions, vocabulary games, or short communicative tasks that encourage spontaneous speech. In STEM subjects, they may involve problem-based challenges, thought experiments, or rapid brainstorming sessions. What

unites all these formats is their emphasis on engagement, interaction, and mental activation rather than passive reception.

An effective warm-up should be concise (3–5 minutes), purposeful, and directly related to the learning objectives. When implemented consistently, warm-ups contribute to the creation of a classroom culture characterized by curiosity and readiness to participate.

Brain Breaks: Cognitive Reset and Emotional Balance

Brain breaks serve a different but complementary role. They are strategically placed moments of mental relaxation that help students sustain focus during extended learning periods. Rather than being mere interruptions, they act as transitions that allow the nervous system to recalibrate.

Research conducted by Harvard Medical School (2020) indicates that students who take regular brain breaks every 25–30 minutes exhibit improved concentration and emotional stability. These findings are consistent with the Pomodoro technique in time management, which similarly emphasizes short breaks between intensive work sessions.

Brain breaks can take many forms:

Physical (movement, stretching, dance, or yoga);

Cognitive (riddles, memory games, quick quizzes);

Creative (drawing, singing, storytelling);

Mindful (deep breathing, meditation, visualization).

The optimal type of break depends on the subject matter, students' age, and learning environment. For younger learners, physical activities are most effective; for older students, cognitive or mindful breaks may yield better results. Importantly, brain breaks should never feel like a punishment or distraction — they must be enjoyable and inclusive.

Neuroscientific Perspective

From a neuroscientific standpoint, the effectiveness of warm-ups and brain breaks lies in their impact on the prefrontal cortex — the brain region

responsible for executive functions, decision-making, and working memory. Continuous mental effort taxes this region, leading to overload and decreased performance. By temporarily shifting the focus, breaks allow the prefrontal cortex to rest while other brain areas (such as the motor cortex or limbic system) remain active, ensuring overall cognitive balance.

Physical activities increase blood circulation and oxygenation, enhancing neural connectivity. Meanwhile, creative or mindfulness-based breaks stimulate the brain's default mode network, which supports associative thinking and long-term memory consolidation. The alternation between these modes — focus and relaxation — creates the neurobiological rhythm necessary for efficient learning.

Applications in Classroom Practice

Globally, educators have adopted warm-ups and brain breaks as integral components of classroom management. In Finland, short movement sessions are mandated after every 45-minute lesson to promote physical health and mental readiness. In Japan, teachers use "Rajio Taiso," morning exercises broadcast across schools, to enhance focus before academic lessons. In the United States, platforms such as GoNoodle and MindUP provide teachers with digital tools for guided movement and mindfulness.

Conclusion

Warm-ups and brain breaks embody a philosophy of balanced learning — one that recognizes the learner as a holistic being, combining mind, body, and emotion. They remind educators that effective teaching is not merely about content delivery but about nurturing attention, curiosity, and well-being.

When thoughtfully applied, these short pauses become powerful pedagogical tools that transform the classroom from a site of passive reception into a vibrant space of active engagement and discovery. In this sense, warm-ups and brain breaks are not interruptions to learning but integral components of it — catalysts that sustain the vitality of both teacher and student in the lifelong journey of education.

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