**NEVROZNANOST V POUČEVANJU: BLAGOSLOV ALI PREKLETSTVO?**

**NEUROSCIENCE IN TEACHING: BLESSING OR CURSE?**

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***Izvleček***

*Čeprav dobro poučevanje ostaja dobro v vseh časih, pa so se paradigme poučevanja spreminjale skozi čas: od modela učenca kot “prazne posode”, preko spoznanja, da mora učenec izgrajevati znanje sam (konstruktivizem) in da je inteligenc več, do novih spoznanj, ki izhajajo iz sodobne kognitivne nevroznanosti - da poznavanje možganskih procesov lahko bistveno olajša in obogati proces učenja. Med temeljna spoznanja, do katerih skupaj prihajata in jih potrjujeta kognitivni nevroznanstvenik in učitelj – prvi skozi študij zdravih in bolnih možganov, drugi v interakciji z učenci v učilnici, sodijo:*

* *nov pogled na odnos med čustvenim in razumskim*
* *dejstva in miti o vlogi različnih predelov možganov pri dosegi cilja (levi in desni možgani, prefrontalni reženj)*
* *razvojne razlike in individualna izraznost moči in slabosti*
* *biološke osnove empatije in jaza (vloga zrcalnih nevronov)*
* *različni spomini in vloga konteksta pri učenju*
* *nova spoznanja o motivaciji, pozornosti, reševanju problemov*
* *možganske osnove motenj pri učenju*
* *nova spoznanja o plastičnosti živčevja*
* *vpliv stresa na procese učenja in na spomin*
* *razvoj nevronskih mrež za izvršitvene funkcije*

*Sodoben učitelj mora biti seznanjen z novimi spoznanji kognitivnega nevroznanstvenika; ta pa mora svoje hipoteze graditi na osnovi bogatih izkušenj, ki jih učitelj že skozi tisočletja pridobiva v učilnici, ob neposrednem stiku z generacijami učencev.*

***Ključne besede****: učenje, kognitivna nevroznanost, možgani, čustva, razum, empatija, spomin*

***Abstract***

*Although good teaching remains good across all ages, its paradigms changed with time: from the model of a pupil as an "empty vessel" to the understanding of a pupil as a builder of his own knowledge (constructivism) and the notion of multiple intelligences to new concepts taken from recent findings in cognitive neuroscience – that understanding and knowledge about brain processes may importantly help and enrich the teaching process. Let us mention some basic findings – discovered and confirmed by both, cognitive neuroscientist and teacher:*

* *new understanding of the relationship between emotion and reason*
* *facts and myths on how the brain recruits its many parts to accomplish different tasks (right-brain/left-brain, prefrontal cortex)*
* *developmental differences and individual profiles of cognitive strengths and weaknesses*
* *mirror neurons, empathy, and the self*
* *various memories and the relationship between performance and context in learning*
* *new findings about motivation, attention, problem solving*
* *brain mechanisms of learning disabilities*
* *new informations on brain plasticity*
* *the influence of stress on learning process and memory*
* *construction of neural networks for executive functions*

*A modern teacher must be informed about new findings from the field of cognitive neuroscience; and the cognitive neuroscientist must draw its hypotheses from the rich experiences that teachers are gaining across centuries, through an interactive contact with generations of pupils.*

***Key words:*** *teaching, cognitive neuroscientist, brain, emotions, empathy, memory*