

Introduction

The Learning Brain and the Classroom

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During the last couple of decades, a number of public policy and university initiatives triggered a drastic increase in neuroscientific research. The advances in neuroscience increased public awareness and gave rise to a “brain turn” for many disciplines in the humanities. In turn, traditional thematic areas are being approached through a more brain-oriented perspective, while new collaborations across traditionally non-neighbouring disciplines are being established. For instance, the debate about knowledge acquisition has very recently taken a new form and researchers in fields as diverse as Cognitive Science, Neuroscience and Education have started to show interest in combining their efforts with an end of promoting a systematic account of improving current learning and educational practices. However, researches in brain sciences and education are still only tenuously interconnected. This special issue brings together papers highlighting the prospects and challenges of recent advances in brain sciences regarding the cognitive process of learning and, ultimately, education. At the same time, this special issue aims at bringing a degree of conceptual clarity to related discussions.

Tom Feldges in *Motivation and Experience Versus Cognitive Psychological Explanation* assesses the limitations of the envisaged utilisation of neuroscientific findings for pedagogical and educational purposes, while focusing on the individual experience of learning. In doing so, he reveals cognitive psychology as a functional theory of mind and argues that the envisaged tacit reductive agenda that aims at reducing pedagogical instruction to a causal fixture will remain tacit, while the existing borders of the established

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academic disciplines of education and psychology will most probably withstand the Brain-Turn.

Koji Tachibana in *Neurofeedback-Based Moral Enhancement and Traditional Moral Education* focuses on human enhancement (ranging from physical to cognitive) and considers the possibility of moral enhancement technologies. Specifically, he centres his analysis around moral *education* broadly construed, and argues for a neurofeedback-based moral enhancement. He shows that moral enhancement is indeed possible (in virtue of neurofeedback) and also that despite being innovative in many respects, neurofeedback-based moral enhancement is compatible with traditional moral education techniques. As such it can be incorporated into the traditional moral education network.

David Gamez in *Could Neurolecturing Address the Limitations of Live and Recorded Lectures?* adopts a different perspective and focuses on lecturing as a common teaching method in higher education, while pointing out that some of its limitations could be addressed through “Neurolecturing” – an approach that combines electroencephalography (EEG) and eye-tracking in order to measure students’ attention, learning and cognitive load and provide real time feedback to students and lecturers.

Laura Candiotta in *Boosting Cooperation. The Beneficial Function of Positive Emotions in Dialogical Inquiry* evaluates the role of positive emotions for cooperation in dialogical inquiry. She construes cooperation as a process that leads a group to cognitive transformation and argues that positive emotions support cooperation and are thus beneficial for group knowledge creation. She distinguishes between two functions that emotions seem to play in the process of knowledge-building: (1) motives for joint inquiry, and (2) building blocks of the affective environment within which the inquiry takes place.

Alexandros Tillas in *Hacking Our Brains for Learning* focuses on observational learning, investigates the mechanisms that underpin human imitation and highlight its relations to learning in an attempt to highlight the importance of emotions. He fleshes out possible ways in which the insights about the role of imitation in learning could help design a more effective and equally rewarding learning environment. Specifically, he suggests that the simplest and most effective way to foster learning via promoting imitation is through letting learners of various ages co-exist, and assesses the benefits of learning in a mixed-age group.

Danai Tselenti in *Economics of Learning & Paying Attention: A Case Study* assesses the role of attention in learning by comparing the effects of different reading modalities and participation practices in learning. She presents the basic findings of a case study conducted on a gender mixed crime fiction face-to-face book club in Athens. Based on grounded theory methodology, the results indicate that exchanges are framed in terms of an agonistic “gift economy” and circulate among two basic reading modalities grounded in different structures of paying attention and invested with different cognitive value. She shows that the construction of regimes of worth among members has implications for the study of interactions in many learning environments.

Lynda Fitzwater in *Theory and Practice in Art & Design Education and Dyslexia: The Emancipatory Potentials of a Neurodiversity Framework* argues for re-interpreting the problematics of traditional academic writing for Arts students – usually viewed as separate to visual work – through a neurodiversity framework. She shows that in this way students are empowered to access truly emancipatory forms of learning, while the most pernicious aspects of neoliberal management, routed through competitive differences, are undermined.

Byron Kaldis in *Concept Nativism and Transhumanism: Educating future minds* construes education in terms of concept learning, while focusing on transhumanism, and investigates whether innate conceptual repertoires should matter to transhumanist debates. Kaldis projects his findings to received views on education, and especially the kind of education appropriate for such future minds, and argues that education, construed in this way, will be of paramount value for cognitively enhanced beings yet quite different compared to what it is today.