Neuroscientific insights into education: exploring assessment and evaluation in learning

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Abstract: *Educational neuroscience provides vital insights into how numerous elements determine students' behaviour, such as brain development, environmental effects, heredity, and personal views. By diving into educational neuroscience research, teachers may discover a multitude of techniques to improve their classroom practices and empower pupils to better understand their own learning processes. This discipline gives insight on a wide range of problems important to educators, from neuroplasticity and memory to learning environment design. Understanding neuroplasticity, for example, might drive instructional techniques that take advantage of students' abilities to develop and change. Teachers may use memory research findings to improve learning experiences and help students recall material more successfully. Furthermore, educational neuroscience emphasises the necessity of designing supportive learning environments that take into account students' emotional well-being and cognitive growth. Trauma-informed methods, for example, acknowledge the influence of negative events on brain function and behaviour, enabling educators to create safe and caring school environments in which all kids may thrive. In addition to these basic principles, educational neuroscience provides practical suggestions on a wide range of teaching practices, including bringing creativity, activity, and mindfulness into classes to engage students' brains and improve learning results. Strategies such as retrieval practice and metacognitive reflection enable students to become more active and self-aware learners, providing them with critical thinking and problem-solving skills. Educational neuroscience insights help educators gain a more profound comprehension of the complex interactions among the brain, behavior, and learning processes. This enhanced understanding empowers teachers to tailor their instructional methodologies to align more closely with the individual needs of their students. With the aid of educational neuroscience educators can cultivate an environment in the classroom that nurtures continuous learning and development, laying the foundation for lifelong educational growth. This implementation of educational neuroscience not only influences current teaching practices but also shapes future approaches, paving the way for more innovative and effective strategies to support student learning and well-being.*

Key words: *learning, neurodidactics; neurogenesis; evaluation; neuroplasticity; connections in education.*

Neuroplasticity and Neurogenesis for Enhanced Learning

To support effective learning, it is important to understand the brain's dynamic nature and how it reacts to varied inputs. This process is driven by neuroplasticity, the brain's ability to change and reorganise itself in response to new

experiences. Neuroplasticity, often called neural plasticity or brain plasticity[1], is a process in which the brain undergoes adaptive structural and functional changes[2]. It is described as the nervous system's capacity to respond to internal or external stimuli by reorganising its structure, functions, or connections following traumas. In children, this process of neuroplasticity is found when students meet new material or face difficult tasks, their brains undergo changes that build neural connections and improve cognitive performance[3]. Educators may use neuroplasticity to create more effective teaching practices that encourage deeper learning and retention. This idea emphasises the need of offering diverse and engaging learning experiences that activate multiple parts of the brain and improve overall learning results. The notion of neurogenesis emphasises the need of establishing settings that encourage the formation of new neurons in certain brain areas. Educators can improve students' cognitive capacities and promote lifelong learning by creating an enhanced learning environment that encourages neurogenesis. Neurogenesis, or the process of creating new neurons in the brain, has important consequences for children's schooling. While neurogenesis was previously assumed to occur largely during early development, research has revealed that it continues throughout life, albeit at varied rates in various brain areas[4]. Understanding the significance of neurogenesis in childhood education can help to influence instructional strategies and promote better learning outcomes.

Important considerations for education:

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[1] Refers to the capacity of the nervous system to modify itself, functionally and structurally, in response to experience and injury.
[2] Puderbaugh, Matt. "Neuroplasticity." *StatPearls - NCBI Bookshelf*, 2023. https://www.ncbi.nlm.nih.gov/books/NBK557811/.
[3] Gualtieri Samantha, Amy S. Finn, "The Sweet Spot: When Children's Developing Abilities, Brains, and Knowledge Make Them Better Learners Than Adults", *Perspectives on Psychological Science* 17, no. 5, 2022, p. 1322–1338.
[4] Danka Kozareva Danka, John F. Cryan, and Yvonne M. Nolan, "Born This Way: Hippocampal Neurogenesis across the Lifespan", *Aging Cell* 18, no. 5, 2019.

✓ *Critical times of Development* in early infancy is marked by periods when brain development and neurogenesis is most active. Providing enriched experiences and stimulating situations during these vital periods can aid in the development of new neurons and the formation of strong brain networks. Educators may capitalise on these windows of opportunity by providing age-appropriate activities and interventions that enhance cognitive, social, and emotional growth[5].

✓ *Environmental Enrichment* studies have verified that environmental enrichment, which includes cognitive stimulation, social engagement, and physical exercise, can improve neurogenesis and brain plasticity in children[6]. Schools play an important role in creating a rich learning environment that encourages intellectual curiosity, creativity, and discovery. Activities that engage several senses, promote active learning, and foster social connection can induce neurogenesis and aid in overall growth[7,8].

✓ *Physical Exercise and Health activity* has been related to greater neurogenesis and improved cognitive performance in youngsters. Regular physical exercise not only improves general health and well-being, but it also boosts brain plasticity and academic achievement[9]. Schools may prioritise physical education programmes, playtime breaks

[5] Allen, LaRue, Bridget B. Kelly, Youth Board On Children, and Families, "Transforming the Workforce for Children Birth Through Age 8", *National Academies Press eBooks*, 2015.

[6] Sampedro-Piquero, P., and A. Begega, "Environmental Enrichment as a Positive Behavioral Intervention Across the Lifespan", *Current Neuropharmacology* 15, no. 4, 2017, p. 459–470.

[7] Mandolesi, Laura, Arianna Polverino, Simone Montuori, Francesca Foti, Giampaolo Ferraioli, Pierpaolo Sorrentino, and Giuseppe Sorrentino, "Effects of Physical Exercise on Cognitive Functioning and Wellbeing: Biological and Psychological Benefits", *Frontiers in Psychology* 9, 2018.

[8] Gubert, Carolina, and Anthony J. Hannan, "Environmental Enrichment as an Experience-Dependent Modulator of Social Plasticity and Cognition", *Brain Research* 1717, 2019, p. 1–14.

[9] Laura Baroncelli, Chiara Braschi, Maria Spolidoro, TatjanaBegenisic, Alessandro Sale, and Lamberto Maffei, "Nurturing Brain Plasticity: Impact of Environmental Enrichment", *Cell Death & Differentiation* 17, no. 7, 2009, p. 1092–1103.

and active learning initiatives to ensure that students have plenty of opportunity to move and exercise throughout the day.

✓ *Emotional well-being* is highly significant in neurogenesis and learning[10]. Chronic stress and bad events can hinder neurogenesis and affect brain development, resulting in academic and behavioural issues[11]. Schools may use trauma-informed practices, mindfulness exercises and social-emotional learning programmes to provide a supportive and loving atmosphere in which students feel secure, respected, and empowered to study.

Connections of neurogenesis and evaluation in education

Understanding the relationship between neurogenesis and education enables educators to create educational interventions that promote brain development and a culture of lifelong learning. Schools can nurture a cohort of resilient, inquiring, and adaptive learners capable of thriving in a dynamic global setting by focusing on environmental enrichment, physical health, emotional well-being, and holistic development[12]. Efficient learning requires the simultaneous

[10] Córdova, Alfredo, Alberto Caballero-García, Franchek Drobnic, Enrique Roche, and David C. Noriega, "Influence of Stress and Emotions in the Learning Process: The Example of COVID-19 on University Students: A Narrative Review", *Healthcare* 11, no. 12, 2023.

[11] Hueston, C M, John F. Cryan, and Yvonne M. Nolan, "Stress and Adolescent Hippocampal Neurogenesis: Diet and Exercise as Cognitive Modulators", *Translational Psychiatry* 7, no. 4, 2017, p. e1081–e1081.

[12] Lagoudakis Nektarios, Filippos Vlachos, Vasilia Christidou, and Denis Vavougios, "The Effectiveness of a Teaching Approach Using Brain-Based Learning Elements on Students' Performance in a Biology Course", Cogent Education 9, no. 1, 2022. Mary K. Rothbart, and Michael I. Posner, "The Developing Brain in a Multitasking World", *Developmental Review* 35, 2015, p. 42–63.

engagement of numerous brain areas, a notion known as distributed or holistic learning[13,14].

Integrating evaluation and assessment procedures into educational experiences that inspire many parts of the brain is significant for nurturing complete learning outcomes and providing students with the tools they need to manage the complexities of current problems and possibilities[15]. Educators may successfully test students' comprehension, progress, and competency across domains by incorporating assessment into dynamic learning activities that involve numerous cognitive processes and sensory modalities[16,17]. Adding hands-on experiments, collaborative projects, and creative problem-solving exercises not only engages areas involved with critical thinking, spatial reasoning, and motor abilities, but also allows for formative evaluation and real-time feedback. Similarly, combining multimedia presentations[18], interactive simulations[19], and multimedia resources[20] appeals to a variety of learning styles while improving information processing, memory retention, and information synthesis. Assessment procedures that promote metacognition, self-reflection, and self-regulation help students track their own

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[13] Jusslin Sofia, Kaisa Korpinen, Niina Lilja, Rose Martin, Johanna Lehtinen-Schnabel, and Eeva Anttila, "Embodied Learning and Teaching Approaches in Language Education: A Mixed Studies Review", *Educational Research Review* 37, 2022. Ionescu Thea and Adina Glava, "Embodied Learning: Connecting Psychology, Education, and the World", *Studia Universitatis Babes-Bolyai* 2, no. 60, 2015, p. 5–17.

[14] Ionescu Thea, and Adina Glava, "Embodied Learning: Connecting Psychology, Education, and the World", *Studia Universitatis Babes-Bolyai* 2, no. 60, 2015, p. 5–17.

[15] Linda Darling-Hammond, Lisa Flook, Channa Cook-Harvey, Brigid Barron, and David Osher, "Implications for Educational Practice of the Science of Learning and Development", *Applied Developmental Science* 24, no. 2, 2019, p. 97–140.

[16] Haywood H. Carl, and Carol S. Lidz, "Dynamic Assessment in Practice", *Clinical and Educational Applications*, 2006.

[17] Peng Jian-E, "The Roles of Multimodal Pedagogic Effects and Classroom Environment in Willingness to Communicate in English", *System* 82, 2018, p. 161–173,

[18] Horvath Jared Cooney, "The Neuroscience of PowerPointTM." *Mind, Brain, and Education* 8, no. 3, 2014, p. 137–143.

[19] Wolfe Uta, "Successful Integration of Interactive Neuroscience Simulations into a Non-Laboratory Sensation & Perception Course", *Journal of Undergraduate Neuroscience Education* 7, no. 2, 2009.

[20] Logan Fiorella, Richard Mayer, "Principles for Managing Essential Processing in Multimedia Learning", The Cambridge Handbook of Multimedia Learning, 2021, p. 241–274.

learning progress, identify areas for growth, and establish successful study habits and learning strategies. Assessment procedures become fundamental components of the learning process when a growth mindset is fostered and a culture of continual improvement is promoted.

By using technology-enabled assessment tools and analytics platforms, instructors may gather, analyse, and evaluate data on students' performance and learning paths. Using insights from neuroscientific research and educational data analytics, educators may adapt instruction, diversify learning experiences, and give tailored interventions to meet the unique needs of their students.

Including evaluation and assessment procedures into educational experiences that excite several parts of the brain promotes a holistic approach to learning, preparing students to succeed in an increasingly complicated and interconnected world. By using assessment as a catalyst for development, reflection, and personalised learning, educators may help students become lifelong learners, critical thinkers, and adaptive problem solvers capable of managing future uncertainties and possibilities. Rather than focusing exclusively on discrete brain areas, this technique employs networks involved with memory, sensory processing, executive control, and higher-order cognition. Learners can integrate new material with prior knowledge by engaging several brain areas, resulting in a better comprehension and greater retention. In practice, educators may encourage optimum learning by creating activities and experiences that activate several parts of the brain. For example, using multimodal learning strategies (such as hands-on experiments, visual assistance) can activate several sensory pathways, improving information processing and retention[21,22]. Similarly, tasks requiring problem solving,

[21] Girón-García and Fortanet-Gómez, "Science Dissemination Videos as Multimodal Supporting Resources for ESP Teaching in Higher Education", In *English for Specific Purposes*.
[22] Li Mimi, "Multimodal Pedagogy in TESOL Teacher Education: Students' Perspectives", *System* 94, 2020.

critical thinking, and creative expression can stimulate many cognitive processes, resulting in more complete learning results[23]. Recognising the relevance of neuroplasticity, neurogenesis, and dispersed learning in the educational setting allows instructors to construct environments that optimise students' brain function and encourage meaningful, long-term learning experiences[24].

It's concerning that some schools are cutting back on art, music, physical education, and recess, despite the wealth of evidence from neuroscience demonstrating their importance for students' cognitive, emotional, and physical development[25]. A closer look at why these subjects and activities are key, along with the harmful impact of neuromyths:

- ✓ *Art and Music Instruction* research has repeatedly confirmed that art and music activate brain areas related with creativity[26], emotion management[27], and cognitive function[28]. Participating in creative and musical activities[29] can boost cerebral connections, improve critical thinking abilities[30], and encourage emotional expression[31] and well-

[23] Sellars, "Conversations on Critical Thinking: Can Critical Thinking Find Its Way Forward as the Skill Set and Mindset of the Century?", *Education Sciences* 8, no. 4, 2018.
[24] Dunlosky John, Katherine A. Rawson, Elizabeth J. Marsh, Mitchell J. Nathan, and Daniel T. Willingham, "Improving Students' Learning With Effective Learning Techniques", *Psychological Science in the Public Interest* 14, no. 1, 2013, p. 4–58.
[25] Zadina N. Janet, "The Emerging Role of Educational Neuroscience in Education Reform", *Psicología Educativa* 21, no. 2, 2015, p. 71–77.
[26] Snapper Leslie, Cansu Oranç, Angelina Hawley-Dolan, Jenny Nissel, and Ellen Winner, "Your Kid Could Not Have Done That: Even Untutored Observers Can Discern Intentionality and Structure in Abstract Expressionist Art", *Cognition* 137, 2015, p. 154–65.
[27] Hetland Lois, Ellen Winner, "The Arts and Academic Achievement: What the Evidence Shows", Arts Education Policy Review 102, no. 5, 2001, p. 3–6.
[28] Chiango Rose, "Podcasts: The Archives of American Art Oral History Collection. Archives of American Art, Smithsonian Institution. Https://Www.Aaa.Si.Edu/Resources/Podcasts", *The Oral History Review* 46, no. 2, 2019.
[29] Simion Anca-Georgiana, "Musical Education in the Romanian School System from the Parents' Perspective", *Procedia - Social and Behavioral Sciences* 209, 2015, p. 484–489.
[30] Fedorchuk, V.V, "Music knowledge in context personally focused learning primary school students", *Educational Dimension* 6, 2003.
[31] Simion, Anca, "Classroom Acoustics In The Social And Emotional Development Of Primary School Children", *The European Proceedings of Social and Behavioural Sciences*, 2018.

being[32]. Reduced art and music teaching deprives pupils of important chances for creative expression, self-discovery, and aesthetic appreciation, thereby impeding their overall cognitive and socio-emotional development[33].

✓ *Physical Education and Recess* has been associated with enhanced attention[34,35], memory, and academic achievement in youngsters. Regular exercise increases neurogenesis, improves cognitive function, and lowers stress levels. Playtime offers chances for children to participate in unstructured play, social connection, and physical activity, all of which are necessary for the development of social skills, emotional control, and brain health. Reducing physical education and playtime not only deprives pupils of much-needed physical exercise, but it also impairs their ability to focus, concentrate, and learn successfully in class.

✓ *Neuromyths* such as the concept of a "right-brained" or "left-brained" learner, propagate simplistic and erroneous beliefs[36] about brain function and learning methods[37]. Contrary to common assumption,

32 Hetland Lois, Ellen Winner, "The Arts and Academic Achievement: What the Evidence Shows", *Arts Education Policy Review* 102, no. 5, 2001, p. 3–6.

33 Miles Melissa, Sarah Rainbird, "Evaluating Interdisciplinary Collaborative Learning and Assessment in the Creative Arts and Humanities", *Arts and Humanities in Higher Education* 14, no. 4, 2014, p. 409–425.

34 Mandolesi Laura, Arianna Polverino, Simone Montuori, Francesca Foti, Giampaolo Ferraioli, Pierpaolo Sorrentino, Giuseppe Sorrentino, "Effects of Physical Exercise on Cognitive Functioning and Wellbeing: Biological and Psychological Benefits", *Frontiers in Psychology* 9, 2018.

35 Rassovsky Yuri, Tali Alfassi, "Attention Improves During Physical Exercise in Individuals With ADHD", *Frontiers in Psychology* 9, 2019.

36 Lindell, Annukka, Evan Kidd, "Why Right-Brain Teaching Is Half-Witted: A Critique of the Misapplication of Neuroscience to Education", *Mind, Brain, and Education* 5, no. 3, 2011, p. 121–127.

37 Rato Joana Rodrigues, Ana Maria Abreu, Alexandre Castro-Caldas, "Neuromyths in Education: What Is Fact and What Is Fiction for Portuguese Teachers?", *Educational Research* 55, no. 4, 2013, p. 441–453.

neuroscience research has disproven the existence of different "left-brained" and "right-brained" individuals[38]. Instead, the brain acts as a complex network, with different areas working together to support diverse cognitive activities. Belief in neuromyths can lead to ineffective instructional practices that ignore the brain's dynamic and complex nature, thereby impeding student learning and academic progress[39].

It is important for educators, policymakers, and stakeholders to devote resources to educational initiatives that are empirically anchored in neurological research. By focusing attention and funding on disciplines such as art, music, physical education, and structured play, educational institutions can foster comprehensive development and create pedagogical environments that promote children's cognitive, emotional, and physical well-being. Furthermore, efforts to debunk neuromyths and cultivate a scientifically correct understanding of brain function can help guarantee that teaching techniques are consistent with current neuroscientific discoveries and evidence-based educational practices.

The role of neuroplasticity in evaluation and assessment practices

Assessment for Learning (AfL) and formative assessment are important factors in promoting student learning and academic advancement because they provide continuous feedback and opportunity for reflection and improvement. We can further explore their relevance, as well as how neuroscientific knowledge might guide their design and implementation.

✓ *Promoting student learning and academic growth* - formative assessment refers to continuous, interactive evaluations that take place within the learning process to monitor student development, identify areas of strength and weakness, and influence instructional decision-

[38] Roger Sperry, "Hemisphere Deconnection and Unity in Conscious Awareness", *American Psychologist* 23, no. 10, 1968, p. 723–733.

[39] Ferreira Roberto, Cristina Rodríguez, "Effect of a Science of Learning Course on Beliefs in Neuromyths and Neuroscience Literacy", *Brain Sciences* 12, no. 7, 2021.

making. Formative assessments, as opposed to summative tests, which are used at the conclusion of a learning session to evaluate student progress, focus on supporting learning in real time by giving feedback that guides future stages in education[40]. By incorporating formative assessment approaches into the classroom, educators may provide a supportive learning environment in which students feel empowered to take ownership of their learning, establish objectives, and engage in self-regulated learning activities.

✓ *Neuroscientific insights and formative assessment* - as we have seen above, neuroscientific research has provided insight on the brain's neuroplasticity, or ability to reorganise and change in response to new experiences. The research has also highlighted the importance of metacognition[41]—the knowledge and management of one's own mental processes—in effective learning. Using formative assessment to promote metacognitive skill development, instructors may assist students in becoming more strategic, introspective, and self-directed learners. Successful learners frequently employ metacognitive tactics during learning. However, they may fail to employ the optimal method for each sort of learning environment. Metacognitive abilities that any learner may apply[42]:

- *knowing your limits* or knowing personal memory limitations and seeking external assistance for specific tasks;

[40] Stan Cristian, Adriana Denisa Manea, "The Divergent Relationship between Assessment and Self-Assessment in Higher Education. Experimental Results", *Procedia - Social and Behavioral Sciences* 209, 2015, p. 497–502.

[41] Adina Glava, *Metacogniția și optimizarea învățării: aplicații în învățământul superior*, Cluj-Napoca, Casa Cărții de Știință, 2009.

[42] Jaleel Sajna, Premachandran P, "A Study on the Metacognitive Awareness of Secondary School Students", *Universal Journal of Educational Research* 4, no. 1, 2016, p. 165–172.

- *self-monitoring* involves assessing the effectiveness of a learning approach, such as idea mapping, and making necessary adjustments;
- *modify* used to evaluate comprehension and adjust strategy accordingly;
- *skimming* refers to removing unnecessary material from subheadings to focus on what is relevant;
- *rehearsing* involves continuously practicing a skill to develop expertise;
- *self-testing* - conduct regular self-tests to assess performance.

✓ *Designing Effective Formative Assessment Strategies* - neuroscientific knowledge can help build formative assessment procedures that are consistent with the brain's natural learning processes. For example, delivering quick feedback stimulates brain circuits related with reward processing, increasing motivation and reinforcing the learning process. Retrieval practice, or regularly retrieving information from memory, is included into formative assessment tasks to establish brain connections and increase long-term retention[43]. Similarly, interleaving[44]—the use of diverse types of information or abilities in assessment tasks—helps to enhance deeper learning and knowledge transfer. Using technology, such as adaptive learning platforms and educational applications, instructors may collect real-time data on student performance and customise formative tests to meet individual learning requirements.

[43] Wiklund-Hörnqvist, Carola, Sara Stillesjö, Micael Andersson, Bert Jonsson, and Lars Nyberg. "Retrieval Practice Is Effective Regardless of Self-Reported Need for Cognition - Behavioral and Brain Imaging Evidence." *Frontiers in Psychology* 12, 2022, https://doi.org/10.3389/fpsyg.2021.797395.

[44] Firth, Jonathan, Ian Rivers, and James Boyle. "A Systematic Review of Interleaving as a Concept Learning Strategy." *Review of Education* 9, no. 2, 2021, https://doi.org/10.1002/rev3.3266.

This personalized method improves feedback efficacy while also promoting metacognitive skill development[45]. Formative evaluation helps to promote student learning and academic advancement by offering timely feedback and chances for reflection and improvement. Educators may improve learning experiences, encourage brain development, and nurture metacognitive abilities required for lifetime learning and success by incorporating neuroscientific insights into the design of formative assessment procedures.

Future Directions and Challenges

The goal and future directions is to make advances in educating teachers on how scientists address conflicting viewpoints on a certain body of information. There is a need of providing educators with the ability to critically analyse multiple viewpoints within their field. The tactics can be based on providing educators with organised training on the theoretical foundations of Cognitive Neuroscience and engaging them in active research groups. These efforts are aimed at providing a solid scientific education that improves their capacity to traverse complex scientific concepts and material efficiently. Despite the evaluation's limitations, involvement in research has the ability to develop critical thinking abilities required for distinguishing legitimate scientific material from a sea of commercial offerings[46]. By fostering a scientific mentality in educators, they may better interact with specialised literature and make informed teaching judgements.

[45] Luo, Tieyong, and Cuizhen Liu. "The Impact of Feedback on Metacognition: Enhancing in Easy Tasks, Impeding in Difficult Ones." *Consciousness and Cognition* 116, 2023, https://doi.org/10.1016/j.concog.2023.103601.

[46] Carboni, Alejandra, Alejandro Maiche, and Juan C. Valle-Lisboa. "Teaching the Science in Neuroscience to Protect From Neuromyths: From Courses to Fieldwork." *Frontiers in Human Neuroscience* 15, 2021, https://doi.org/10.3389/fnhum.2021.718399.

The role of education and neuroscience in creating the future of learning depends on how information is implemented to assist those who are most affected by it. At the heart of this debate is the question of how educational institutions and families interact with children's development. When contemplating the use of neuroscience in education, it is important to avoid approaches that prioritise moulding children above nurturing them[47]. Educational programmes based on neuroscience must prioritize empowering children via persuasion rather than using compulsion to effect behavioural change. Approaches that prioritise coercion risk eroding children's autonomy and intrinsic drive, perhaps resulting in bad long-term consequences[48]. Instead, educators and families should focus on creating situations that encourage children's autonomy, agency, and intrinsic drive.

Understanding and utilising neuroscience concepts, such as the relevance of social-emotional development and the influence of positive reinforcement on learning, allows educational techniques to be adapted to promote holistic development while respecting children's individuality and rights[49]. Furthermore, collaboration among educators, neuroscientists, politicians, and families is required to ensure that educational methods are grounded in scientific knowledge and promote favourable outcomes for children. By developing a culture of cooperation and mutual respect, stakeholders may collaborate to build educational environments that prioritise each child's well-being and growth.

[47] Stein, Zachary, Bruno Della Chiesa, Christina Hinton, and Kurt W. Fischer. "Ethical Issues in Educational Neuroscience: Raising Children in a Brave New World." *Oxford Handbooks Online*, 2011, https://doi.org/10.1093/oxfordhb/9780199570706.013.0179.

[48] Bruer, John T. "Where Is Educational Neuroscience?" Educational Neuroscience 1, 2016, https://doi.org/10.1177/2377616115618036.

[49] Schwartz, Marc. "Mind, Brain and Education: A Decade of Evolution." *Mind, Brain, and Education* 9, no. 2, 2015, p. 64–71, https://doi.org/10.1111/mbe.12074.