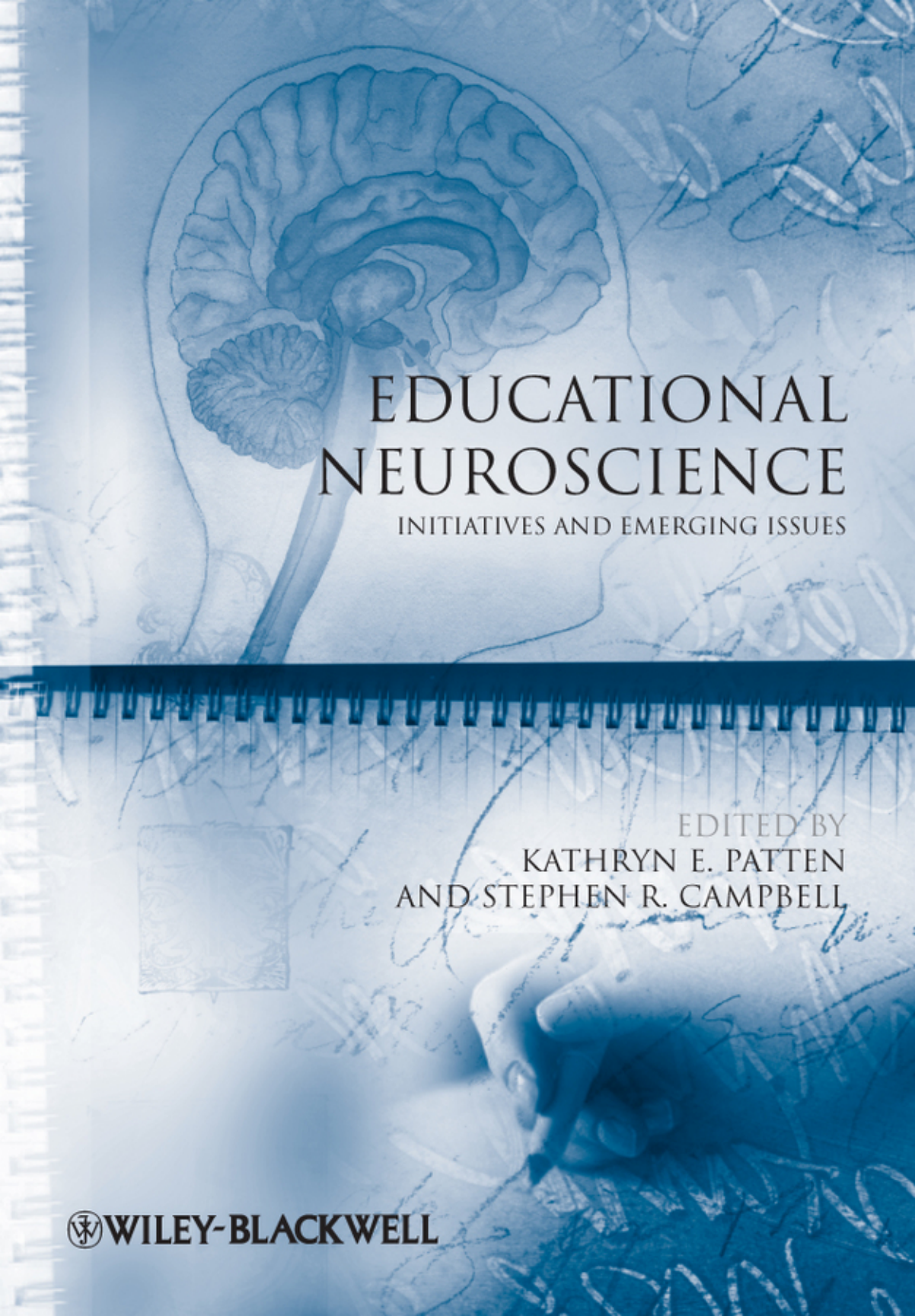

EDUCATIONAL NEUROSCIENCE

INITIATIVES AND EMERGING ISSUES

EDITED BY
KATHRYN E. PATTEN
AND STEPHEN R. CAMPBELL

WILEY-BLACKWELL

Educational Neuroscience

Educational Philosophy and Theory Special Issue Book Series

Series Editor: Michael A. Peters

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Educational Neuroscience

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Foreword

The *Educational Philosophy and Theory* Book Series is dedicated to enhancing the ongoing conversations surrounding all aspects of educational philosophy, including areas of pure and applied educational research. The book series aims to extend the dialogues of educational philosophy by incorporating work from the related fields of arts and sciences, as well as work from professional educators. This monograph based on the special issue entitled *Educational Neuroscience* and edited by Kathryn Patten and Stephen Campbell brings together fourteen chapters, including an Introduction, to review and discuss an emerging field sometimes also referred to as Mind Brain Education (MBE), after the journal established by Kurt Fischer in 2007. Both Kate Patten and Sen Campbell are from the Educational Neuroscience Laboratory (respectively, Outreach Coordinator and Director) established at Simon Fraser University in 2006 through the Canadian Foundation for Innovation's New Opportunities Program. The Laboratory called Engrammetron, after the 'engram' or 'memory traces' hypothesized by Karl Lashley (1890–1958) the father of modern neuroscience, was set up with a primary specialization in mathematics education as a facility to measure, analyze and observe through various instruments and methods (including, electroencephalography (EEG), electrocardiography (EKG), electromyography (EMG), and eye-tracking (ET) capability), patterns of 'mind brain' behaviour. The field is very recent and emerging quickly with major centres or research networks established in London, Cambridge, Harvard and Bristol:

- London (Centre for Educational Neuroscience, http://www.educationalneuroscience.org.uk/)
- Cambridge (Centre for Neuroscience in Education, http://www.educ.cam.ac.uk/centres/neuroscience/)
- Harvard (Brain Mind, and Education, http://www.gse.harvard.edu/academics/masters/mbe/)
- Bristol (The NeuroEducational Research Network, http://www.neuroeducational.net/)

All established in the past five years, these facilities advertise themselves as transdisciplinary projects designed to synthesize biological, cognitive and social dimensions of learning within a developmental psychology framework that pays homage to Piaget. The Cambridge Centre states 'we aim to understand how the brain functions and changes during the development of reading and maths, exploring the development of related skills such as language, memory, numerosity and attention'. The Harvard initiative advertises an interdisciplinary programme 'including not only psychology, pedagogy,