

MICHAEL A PETERS

AFTERWORD

EMOTIONAL REASON: CHALLENGING COGNITIVISM IN EDUCATION

In 2004 R. W. Picard and nine colleagues at the MIT Media Lab published “Affective Learning – A Manifesto” that registered a challenge to cognitive theories recognizing the way that the computer as model and metaphor had tended to skew research on learning as a form of information processing by privileging the “cognitive” over the “affective.” The manifesto attempted to redress the imbalance to support an increasingly research-based “view of affect as complexly intertwined with cognition in guiding rational behaviour, memory retrieval, decision-making, creativity, and more” (Picard, 2004). They wanted to build new learning systems that used affect as a basis for new education and machine learning. They noted that “the extension of cognitive theory to explain and exploit the role of affect in learning is in its infancy.”

Educational research lagged far behind the latest neuro-biological and evolutionary findings and had considerable difficulty translating scientific studies into classroom practice. Studies attempting to recognise the role of emotions in learning could do no better than proclaiming “Emotions affect learning” advising that teachers need to understand how their students’ emotions affect learning and make judgments about when emotions are interfering with or supporting learning. In this context educational researchers also jumped on the “emotional intelligence” bandwagon and used the concept to advise teachers to help their students “manage their emotions”. The emphasis also fell on creating “emotionally safe learning environments” where students felt safe and could take risks to develop their learning confidence.¹

By 2014 Reinhart Pekrun (2014) could make an argument for the central place of emotions in the classroom:

The classroom is an emotional place. Students frequently experience emotions in classroom settings. For example, students can be excited during studying, hope for success, feel pride in their accomplishments, be surprised at discovering a new solution, experience anxiety about failing examinations, feel ashamed over poor grades, or be bored during lessons. In addition, social emotions play a role as well, like admiration, empathy, anger, contempt, or envy concerning peers and teachers. Moreover, students bring emotions to the classroom that concern events outside the school, but can nevertheless have a strong influence upon their learning, such as the emotional turmoil produced by stress within the family.

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Emotions control the students' attention, influence their motivation to learn, modify the choice of learning strategies, and affect their self-regulation of learning. Furthermore, emotions are part of students' identity, and they affect personality development, psychological health and physical health. From an educational perspective, emotions are important because of their influence on learning and development, but students' emotional well-being should also be regarded as an educational goal that is important in itself.

Focusing on emotions that students experience at school Pekrun (2014) proposed ten principles that cover the nature and diversity of students' emotions, functions, antecedents, and the regulation of emotions, and the role of education in modifying emotions, including the influence of teachers, classrooms, schools, peers and the family. On the basis of the research he distinguishes four major kinds of academic emotions: Achievement emotions that relate to student success and failure; epistemic emotions largely cognitive that surround problem solving including surprise, curiosity, confusion, and delight; topic emotions pertaining to lessons including emotions like empathy, anxiety and, or aesthetic enjoyment; social emotions relating to teachers and peers "such as love, sympathy, compassion, admiration, contempt, envy, anger or social anxiety".

Educational neuroscience studying the learning brain is identifying core concepts and principles at the heart of the emerging field:

- Human development is shaped by a synergy of biology and experience
- Emotion is fundamental to learning
- There are developmental sensitivities for certain aspects of language learning
- The literate brain can be created through multiple developmental pathways
Mathematics is created in the brain with biology and instruction (Hinton et al., 2008: 87).

In the early attempts this century to examine the significance of emotions in learning their role was not as a central part of reason and rationality, as part of cognitive development. This was a brave attempt to recognize emotions but it did not try to theoretically rework the cognitive paradigm that was responsible for excluding the emotions to start with.

Thomas Dixon (2012) has mapped the history of "emotion" as a keyword in crisis from the point at which William James wrote an influential article for *Mind* called "What is an Emotion?" in 1884. He comments "Before then, relevant mental states were categorised variously as "appetites," "passions," "affections," or "sentiments" (p. 388). James, like Wittgenstein later, was trying to establish or define a psychological category and examine its meaning and he theorized emotion as a direct perception of some object in the world. James and the founders of the discipline of psychology bequeathed the discipline and related areas a set of inherited confusions between mind and body, thought and feeling that bedevilled the profession thereafter

and gave way to an even more diversified semantic and cultural history that seems to threaten the scientific operationalization of the concept.

Certainly the classical cognitivist account has become increasingly problematic not least because of the tendency to treat the individuals' cognitive processes in isolation from the thinking of others and from their environment, downplaying the influence of the dimension of collective intelligence, the role of collective emotions and overlooking the role of environmental factors in cognitive development.² These criticisms have led to new paradigms of embodied cognition and the extended mind, both of which open up the possibility for recognizing more formally the role of emotions in cognition and cognitive development. Both views have begun to emphasize goal-directed interactions between individuals and their environment in a problem-solving orientation against the classic cognitive paradigm that defines cognition in terms of the formal logic of rule-following and information processing that assumes a computational model of rationality. This postulate of a sort of internal set of brain processes unaffected by the environment excludes the role of emotion and makes it difficult to account for any collective dimension of intelligence or imagination.

The Cambridge Embodied Cognition and Emotion Lab assumes "First, cognition is grounded in actual bodily states, and second, many cognitive processes serve the broader goal of facilitating action in a specific environment."³ Their work has explored various dimensions of embodied cognition in a number of interdependent contexts: *The Body and the Social World: Embodied Morality* where research supports the idea that moral judgement is driven by intuitive processes rather than deliberate reasoning in which emotion plays a fundamental role; *The Body and the Physical World: Embodied Perception* where findings indicate that "even perceptions of physical space turn out to depend on the social and emotional context" and, *Embodied Metaphors*, where "a certain set of basic bodily experiences that are essential in providing basic cognitive metaphors." In regard to the latter, Simon Schnall (2012) writes:

In contrast to traditional theories of cognition, according to embodied approaches, cognitive processes do not have the goal of arriving at a mirror image of the world, but rather, cognitive processes allow humans to successfully act in their physical and social world. Thus, one of the main assumptions of embodied cognition is that the human body constrains action and its regulation, and as a consequence, produces a cognitive apparatus that facilitates action.

As Schnall explains the early work of Lakoff and Johnson (1980, 1999) on cognitive metaphors largely confined to linguistics has been confirmed in other areas of social experience confirming the metaphoric basis of many cognitive processes.⁴

Recent research examines the extension of theories of embodied cognition to the study of emotion and emotion knowledge such as the ways in which emotion concepts are supported by simulation in sensory-motor systems, the influences of

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emotion in processes as the encoding of words, lexical access, and the perception of faces, and the ways ‘emotions have important relations to processes of attention, memory, and are constituted in part by physiological processes, all of which are inputs to the mechanisms that support the subjective experience of time’⁵

Giovanna Colombetti writes of the 4E approach to the mind: embodied, embedded, enactive and extended.⁶ She argues:

My own view is that the embodied-mind perspective ought to give up on this dichotomy of the body vs. cognition that is still influential in emotion theory and affective science. Instead, we should characterize the cognitive aspects of emotion as embodied, and the bodily aspects of emotion as cognitive.

Increasingly, both philosophical and psychological studies are ridding themselves of the old dualisms inherited from Cartesian culture to look at more radical interactive embodied accounts of cognition, rationality and learning that do not privilege formal calculative rationality but rather recognize the essential role that emotions play in thinking and learning. Education has tended to lag behind many of these developments and also has great difficulty in translating research on embodied emotions as an approach to cognition in a way that impacts on practices.

This is the significance of Birthe Lund and Tatiana Chemi’s edited collection. It brings the role of the emotions in education centre stage and engages a thematic research project to explore educational contexts that work with innovative settings and the emotional side of learning and teaching and the special significance of emotions in the act of creation and new thinking. In one sense the reversal of hierarchical binary that was the controlling principle for Cartesian culture has not yet taken place. Cognitivism is still trying to adopt an approach to thinking and rationality that allows for emotion as a supplement rather than re-siting the problem altogether to acknowledge that the embodiedness of all human functioning in radical interaction with the environment – a philosophical view that stems from Darwin to be taken up by Heidegger, Dewey and Vygotsky – does not privilege thought over feeling, or cognition over emotions but recognizes that these dualisms disappear in the biological systems of the body as it interacts in dynamical and self-organising ways with its changing environment. Lund and Chemi’s book recognises the new emphasis on the emotions in the innovative economy and the necessity for educationalists – researchers, teachers, and policy makers – to understand how the emotions contribute to artistic endeavour, to creative and innovation practice, and also to a new positive view of the emotions in learning and education.

NOTES

¹ See for instance the session called “Feelings Count: Emotions and Learning” developed by Linda Darling-Hammond, Suzanne Orcutt, Karen Strobel, Elizabeth Kirsch, Ira Lit, and Daisy Martin With Contributions From James Comer, M.D., Stanford University School of Education

² See the entry on Embodied Cognition at <http://www.iep.utm.edu/embodcog/>

³ See <http://www.psychol.cam.ac.uk/cece/research>

- ⁴ Schnall cites the work of Landau, Meier, & Keefer (2010).
⁵ See the Niedenthal Emotions Lab at <http://psych.wisc.edu/niedenthal/research.html>
⁶ See <http://www.hdc.ed.ac.uk/seminars/emotions-body-and-world>.

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Michael Peters
ADD Institute
ADD University, Country?