

## **“The heart has reasons that reason cannot know”**

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**Abstract.** *Neuroscience might appear a threat to educators whose focus is on religion. However, there is significant discussion within the field of "Mind, Brain, and Education" that argues for a multi-aspectual, holistic view of the person and recognises that scientific and educational interests need to be understood as complementary. I present a philosophical model that has been fruitful in bringing a multi-aspectual perspective to bear in geography, information technology, etc. I then explore the role the affective realm plays in cognition and consider the relationship between this and concepts such as desire, in the context of Smith's argument that Christian colleges focus on intellectual understanding as the main engine of religious formation when they should instead attend to the formative power of the (secular and sacred) liturgies in which students engage.*

Neuroscience may appear to be a threat to educators whose focus is on the religious-spiritual dimensions of life, given the long-standing polarisations of body/soul, brain/mind, cognition/affect, determinism/freedom, theory/practice and, of course, science/religion that have characterised Western thinking. I believe these dualisms need to be transcended by an integral view of humanness which at the same time recognises that humans function in a multiplicity of dimensions (cf. Damasio, 2003, p. 12). This is in response to, for example, Campbell's demand that *educational* neuroscience must have as its focus "living human beings, not *just* physiological and biological mechanisms underlying them" (Campbell, 2011, p. 8). Thus, contributors to the emerging field of "Mind, Brain, and Education" (MBE) generally argue for a dialogic relationship between neuroscience and education, with theorists and practitioners learning from one another. This would be a welcome change to the dominance that psychological research has conventionally exercised over the ways in which learning has been construed within the practice of education.

But this latter is not merely about the interplay between theory and practice, for theorising is itself a particular kind of practice. Hence, what is required is a conception of the mutual interplay among varieties of practice. Theories are by and large concerned with particular functional dimensions of the entities and interrelations they investigate, in abstraction from other dimensions. Further, a focus on neurological functioning conventionally construes learning in terms of individual attainments and as internalisation of knowledge, rather than as an inherently social, relational process. But it is neither cognitive processes nor brains that learn: persons – persons-in-relation – do. Brain functioning does not unfold "naturally" but only culturally:

linguistic competence, for example, is utterly dependent on persons being embedded in linguistic communities.

Hence, while methodological reduction is a necessary feature of scientific investigation, it too readily transmutes into ontological reductionism when theoretical bracketing is reified. Acknowledging ontological complexity requires a complementary methodological pluralism and interdisciplinary cross-fertilisation. Stein, Connell and Gardner (2008) describe the focus of differing research projects in educational neuroscience as addressing discrete *levels of analysis*. They also identify another axis framing research, that of *basic viewpoints*; at their most comprehensive, these viewpoints may at times be *worldviews* (while immediately entering the caveat that these should not be construed as primarily cerebral). Worldviews are rooted in convictions about the source of order and meaning – one definition of religion (Wentz, 1987) – and also affect and are affected by philosophical investigations.

The capacity to identify reductionism depends to a significant degree on an ontology (which should be permanently open to revision). The ontological framework developed by Herman Dooyeweerd (1953) and his collaborators and successors (e.g. Clouser, 1991; Hart, 1984; Stafleu, 1981, 1982; Zuidervaart, 2004), which also underscores the role of worldviews, anticipated many postmodern themes. His was an explicitly religious (and specifically Christian) motivation, in that he confessed that only the Creator could be the source of order and meaning; without this acknowledgement, he believed that such a source would be located within creaturely reality, thus subordinating other dimensions of meaning to the absolutised dimension.

This “philosophy of the law-idea” identified fifteen modes of functioning which are irreducible yet extensively interrelated. The modal aspects distinguished are (in increasing complexity): numerical, spatial, kinematic, physical, biotic, sensory-emotional, analytical, techno-cultural, lingual, social, economic, aesthetic, juridical, ethical and fiduciary. Conceived in interaction with the major currents in Western philosophy, this model has been fruitful in bringing a multi-aspectual perspective to bear in geography, information technology, systems theory, politics, economics, aesthetics and elsewhere; it can contribute similarly to a multi-aspectual yet integral framing of educational neuroscience with respect to “living human beings”.

In the familiar dichotomies of Western thought, one of the two terms (usually the former in e.g., theory/practice, male/female, cognition/affect, mind/body) is accorded higher status. Contributors to MBE are generally satisfied to accept “mind” and “brain” as complementary notions, without assaying to determine the exact relationship between the entities these terms purport to identify. With respect to social practices, the distinction cashes out with doctors dealing with mental/psychological conditions that might require them to intervene pharmacologically or even surgically, and educators being responsible for stimulating the development of the mind via the various cultural-cognitive tools and symbol systems it employs.

According to Dooyeweerd, techno-cultural formation is necessary to the process of disclosure, whereby the higher order human functions become operative; in Lave and Wenger's terms, "One way to think of learning is as the historical production, transformation, and change of persons" (1991, p. 51). This is at the same time evidently a social process (cf. Chaplin, 2011, pp. 80-81), oriented to the societal structures through which socialisation occurs, both incidentally and intentionally, thus justifying the use of a category such as "social cognition" to remind us that thinking is not merely or primarily something that happens inside a person's head. We may employ Dooyeweerd's notion of "act-structure" to propose that each human act is qualified (as an adjective qualifies a noun) by a particular normative-cultural modal aspect, so that humans act in a range of discrete ways (which, while mutually irreducible, are at the same time inextricably interconnected). Practices are thus characteristically analytical, formative, linguistic, social, economic, aesthetic, juridical, ethical or fiduciary.

Yet these higher order functions are not mental processes independent of the "body"; they are acts of the person, depending on properly functioning physico-chemical, vegetative and sensitive substructures. One cannot learn to speak outside a linguistic community, but neither can one speak without a functioning pharynx – not to mention all the other bodily systems with which it is intertwined. Nor is it the case, however, that the body is merely a support system for the brain/mind, for it is an indispensable component in motivation, attention and cognition, etc. Thus, in place of the dualistic separation of *res cogitans* and *res extensa*, we must recognise the pervasiveness of "emotional thought".

Recent advances in neuroscience are highlighting connections between emotion, social functioning, and decision making that have the potential to revolutionize our understanding of the role of affect.... [T]he aspects of cognition that we recruit most heavily in schools, namely learning, attention, memory, decision making, and social functioning, are both profoundly affected by and subsumed within the processes of emotion; we call these aspects *emotional thought*. (Immordino-Yang & Damasio, 2007, p. 3)

This notion can be explained in two ways. First, a person is always feeling and thinking. Second, though more complexly than I can here recount, the reciprocal interconnections between aspects of human functioning mean that the analytical has foundational connections with the sensitive, biotic and other earlier dimensions, while these dimensions in turn anticipate the analytical aspect (and other later dimensions). In a close approximation, we may say that cognition comprises sensory and emotional processes at the same time as "emotions comprise cognitive as well as sensory processes" (Immordino-Yang & Damasio, 2007, p. 7).

Neurobiological research by Antonio Damasio and colleagues demonstrates the crucial role of affect in regulating human action and linking cognition with decision-making. The "new view of the mind" associated with their work substantiates the claim "that emotions such as anger, fear,

happiness and sadness, are cognitive and physiological processes that involve both the body and mind”; both the body and brain are involved in learning, because “the mind is influenced by [their] interdependency...” (Immordino-Yang, 2011, p. 99).

Rather than fearing that neuroscience might downplay the significance of “non-material” dimensions of humanness, we should be thankful for the reminder it gives of the importance of these very material elements, in repudiation of what Damasio (1995) dubbed “Descartes’ Error”. Religion is an embodied practice and spirituality is better thought of as that which provides life-direction and motivation – what *animates* us – than as the antithetical partner to the material. Religious educators must be attuned to the way in which human beings actually present, rather than to an idealised conception of what it would be simpler for humans to be (perhaps computational calculators that can be programmed to operate infallibly). In place of this aspiration, the traditional Western exaltation of the abstracted intellect should adjust to an incarnated epistemology and pedagogy, that respects the embodied, emotional mind that neuroscience (and other sources besides) affirms.

Jonathan Haidt (2001) goes so far as to suggest that we are emotional dogs with rational tails. Be that as it may, emotions play an important role in learning, and we thus must nurture and discipline them. The latter term, with its echoes of the academic disciplines to which we currently seek to subject the mind, underscores that coming to be a certain kind of person very much concerns our (bodily) practices or disciplines. Thus, James Smith (2009) chides Christian colleges for their emphasis on intellectual perspectives (worldviews construed as conceptual frameworks) as the means by which students are inducted into a life of discipleship. It is instead the practices in which people regularly engage (“liturgies”, whether the sacred rituals of cultic communities or secular routines such as shopping at the mall) that most shape the *desires* of people, and it is affectivity that Smith regards as fundamental in human formation.

In the autobiographically rooted *Let your life speak*, Parker Palmer (2000) admonishes us to live from the ground up; in other words, live out of who we are as whole persons, not in terms of the values and obligations to which we think we should aspire. Smith’s advocacy of what he hopes is a biblical anthropology resonates strongly with Palmer at this point: it is “not a top-down, ideas-first picture that prioritizes beliefs and doctrines (‘worldview’) but rather a bottom-up, practices-first model that prioritizes worship as a practice of desire” (Smith, 2009, p. 136). Smith attributes the philosophical genesis of the model he develops to Augustine; it is a model that shifts “the center of gravity of human identity ... from the heady regions of the mind closer to the central regions of our bodies, in particular, our *kardia*—our gut or heart” (Smith, 2009, p. 47).

Smith (2009, p. 131) asserts that there is a strong link between being “fundamentally affective beings” and practice: the former entails the latter, because “being human takes practice.” However, just as “heart” in Scripture denotes not the affective domain but the central core of humanness, “body” too is a more fundamental anthropological category than either cognition or

affect. Biblically, we do not *have* but *are* our bodies. And it seems that Smith admits as much, when he immediately writes, “We are shaped by material bodily practices that aim or point our love to ultimate visions of human flourishing....” Thus, when he comes to consider how pedagogy might be transformed in an “ecclesial university”, he does so under the heading, “Reconnecting Body and Mind: Embodied Learning” (Smith, 2009, p. 228).

My title of course is a quotation from Pascal’s *Pensées* (1948, XXVIII). I here take it at face value: the heart has *reasons* that differ from what standardly counts as *reason*. As Colleen Shantz (2009, p. 6) suggests, in a book fascinatingly relevant to the conference theme, “‘Human reason is a polyglot’,” but “some of the ‘languages’ that it speaks are not verbal at all”. Many of these “languages” are socially and historically constructed, and may be aptly construed as cultural-cognitive tools (cf. Egan, 1997, 2002) which people have to learn how to wield – and which they will often need to be taught. Whereas neuroscience can yield important insights into how people engage with these tools, its focus will be on more limited features of these domains of practice. Recognising that persons are integral beings always functioning in all aspects of experience enables us to respect the affective and analytical dimensions of humanness without privileging either of these. Our understanding of learning and teaching will need to be multidimensional.

I recently taught a capstone course with a focus on social justice to a group of predominantly middle-class, White college students. Many found it impossible to believe that African-American or Hispanic students would not have the same opportunities as they did to make a good life for themselves and their families, if they were willing to work hard enough. No matter the historical, sociological or statistical evidence, they were adamant that a person’s plight had little to do with ethnicity or socio-economic status – or whether children had a good breakfast or a quiet night’s sleep. The students who were willing to believe the evidence were those who had spent some time on teaching rounds in schools that were largely non-White or in voluntary work with such children. They remembered the frustration, anger and empathy that they had learned in such situations. Similarly, Nicholas Wolterstorff (2004; 2006) recounts that it was not until he had met face to face with Palestinians and Black South Africans that his intellectual misgivings were transformed into empathy, which became the wellspring for action.

Now empathy evidently has an affective dimension to it, but there is more to it than feeling and sensitivity. It is also an intellectual and imaginative identification with another. Empathy for a person who has been wronged will entail a *sense* of justice, in which sensitivity is intertwined with (“anticipates”) a notion of justice. As not in itself necessarily a grasp of the meaning of justice, it may be misdirected; as a feeling attached to a particular normative content, it may be also be inordinate – too passive or too strident. *Juridical* sense, however, is a measured, informed judgment of what constitutes a just or unjust action, based on familiarity with principles, practices and precedents in which justice is at stake; in Damasio’s (2003, p. 54) terms, “the apparatus of emotions naturally evaluates, and the apparatus of the conscious mind

thinkingly coevaluates.” There are similar interconnections (“analogies”, which are not merely metaphoric but ontic) among all aspects of humanness.

I have reflected in particular on what we may learn from neuroscience about affectivity, and have sought to contextualise the role of affect by relating it to other dimensions of humanness, including our socio-cultural situatedness. Bodily involvement engages us affectively; but more than this, if we are consciously and care-fully attending and intending, we are involved holistically. This includes our deepest convictions about the source of order and meaning, so that, ultimately, all education is religious education.

I have also briefly considered Smith’s pedagogical project, based on his understanding of the fundamental role of desire. Smith proposes that engaging in Christian worship practices will be the means by which to effect a reconnection between body and mind. This, however, is to identify worship with fiducially-qualified acts, to the neglect of the inclusive vision that the New Testament espouses; as encapsulated by Paul in writing to the Romans (12:1-2), this transcends the cultus of Gentiles and Jews alike, to recognise that daily, bodily life is the primary site of worship. Similarly, the appropriate corrective to intellectualised education is to place the complex, concrete contexts of ordinary life at the core, whether first-hand or vicariously, evoking emotional, lingual, ethical, juridical and fiduciary responses, along with analytical and other kinds of response.

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