Empathy and Moral Formation: Practicing virtue in an age of neuroscience

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Abstract. This literature-based paper acknowledges the significant impact practices has made in the field of Religious Education. This work has removed itself from its moral framework. The essay briefly explains virtue as a basic premise of practices. The current literature has ignored key aspects of practice, standards of excellence. Key insights from ethics, cognitive and social neuroscience suggest that empathy needs to be established within Christian standards of excellence. Those insights affirm the power of practice for moral formation.

In 1992 a Lilly grant established the Valparaiso Project on the education and formation of people in faith. The project aimed at articulating "a way of life based on practices that respond to God's grace and reflect God's love for you, for others, and for all creation (practicingourfaith.org)." To date, including Dykstra's own writings, that project has sponsored or officially recognized twenty-two published books, plus study guides, which focus upon Christian practices that shape a way of life.

Despite the volume, significance and strengths of these contributions some areas have been left underdeveloped. The literature has suggested broadly that people come to know theological and moral knowledge through practices; however, it has not discussed how that formation occurs. I intend to show that recent learning in neuroscience reveals significant continuity with that pedagogy and that Christian practices implicitly possess key insights of neuroscience. Furthermore, I hope to argue that neurological response is necessary but not sufficient to shape prosocial behavior, so humans need religious narratives that further shape the automatic neural responses to empathic action. I use the term empathy inclusive of cognitive and affective understanding of another, expressed in such a way that another recognizes that she is cared for and understood. Finally, I use the Christian practice of Bible study to illustrate how religious educators can use neuroscience research to nurture empathy through religious texts.

I. The Origin of Practice in Christian Education

Craig Dykstra has been the contemporary chief architect in arguing for practices within Christian religious education through both his scholarship and grant leadership. His first book *Vision and Character* argued against "juridical ethics" promoted by Lawrence Kohlberg, urging an alternative framework of "visional ethics." The key difference this meant is Dykstra desired a theory embedded in a religious way of life in contrast to universal rules. Dykstra drew upon moral philosopher Iris Murdoch in charting a path for visional ethics (1981). The same year *Vision and Character* was published, Alasdair MacIntyre published *After Virtue* (1981), which laid forth MacIntyre's argument for a return to virtue ethics. MacIntyre argued that a tradition is comprised of practices and when practices are done well a person acquires virtues. A decade later Dykstra drew heavily upon MacIntyre's concept of practice in his essay "Reconceiving Practice" (1991). Dykstra's reading and appropriation of MacIntyre's definition of practice has profoundly impacted the field of Christian Education.

In "Reconceiving Practice" Dykstra cites the entirety of MacIntyre's dense definition of practice. When MacIntyre uses practice in *After Virtue* he means:

> Any coherent and complex form of socially established cooperative human activity through which goods internal to that form of activity are realized in the course of trying to achieve those standards of excellence which are appropriate to, and partially definitive of, that form of activity, with the result that human powers to achieve excellence and human conceptions of the ends and goods involved, are systematically extended (2007, 187; Dykstra 1991, 42).

That definition guides the Dykstra and Bass project as can be seen in the second edition of *Practicing Our Faith*: "Christian Practices are things Christian people do together over time in response to and in light of God's active presence for the life of the world in Christ Jesus" (Bass 2010). Further, "practices address fundamental human needs and condition concrete human acts;" thus, they are practical but not done for their practical outcomes, there is a good to doing them. "Moreover, practices possess standards of excellence." Bass has elegantly unpacked the essence MacIntyre's definition while moving it from abstracted moral philosophical definition to

an embodied way of life.

Standards of excellence proves central to MacIntyre's definition, yet receives too little attention in Bass' extrapolation. For MacIntyre standards of excellence imply the necessity of judgment of self and others. If one wishes to enter into that practice one must submit to the rules and authorities that have achieved the internal goods of that practice and extended the practice. I begin from the assumption that my performance and understanding lack adequacy as judged by the standards (MacIntyre 2007, 190). MacIntyre calls for a "high-level" embodiment. Bass illuminates and softens MacIntyre's harsh-sounding definition as she suggests that to engage the practice of Christian household economics one needs soul stretching conversations with "an eighteenth-century Quaker accountant, a Catholic worker of the 1930s, and an environmental scientist alive today" along with the Bible and friends (2010). Further Bass suggests that the Christian practice of honoring the body would reveal to most of us "evidence that our attitudes and behavior do not consistently honor our own bodies or the bodies of others" (2010). Bass well captures the importance of standards of excellence but does so in a way as to obscure the importance of virtue.

Bass' statements demonstrate a gentler expression of standards of excellence, yet when removed from virtue ethics too little guidance remains. For example, does honoring the body within Christian tradition permit a person to work out? If so how often and to what end ought a person exercise? For example, in the Christian practice of honoring the body do we attempt to secure a rule that one ought never violate, or do we through experiences of practice attain virtues and wisdom so that we know how to honor particular bodies at particular times, one's own included. Or consider the difference between the command do not steal and St. Thomas's argument that a person does not commit theft if that person takes what survival deems necessary from someone who possesses more than necessity demands. Thomas assigns moral culpability to the person does not act charitably (ST 2b.66.7). Questions of necessity, abundance and appropriating another's property defy neat maxims. Virtue theory intends to habituate a person so that she might know how to act virtuously in a situation.

Aristotle's ethics argues for the importance of habituation in the acquisition of virtue. Aristotle's biological anthropology led him to reason that human beings possess an innate capacity to receive virtue. Human beings do not at birth enjoy virtue, but rather human nature has the facility to acquire virtue or vice. Human character becomes habituated as human beings take part in the life of the polis. Human beings can become virtuous only in and through community, as a person learns the habits and customs of a particular community (1103a.1-1109b.20). For Aristotle that is an entirely natural process. Thomas closely adheres to Aristotle's position, but also must account for an interpersonal deity—the Trinity who acts in history. Thus for Thomas, God infuses the theological virtues—faith, hope, charity—but does so in a connatural way with human nature (ST 66.1-3). Thomas simultaneously affirms the natural human capacity of human beings to achieve happiness in accordance with perfect reason and a transcendent, infusion of love that becomes connatural with human nature. That infusion of divine love adds to human nature thereby allowing human beings to fulfill happiness in the divine. For both Aristotle and Thomas human nature required habituation to the virtues, and that habituation occurred through socialization and honing intellectual capacities.

MacIntyre follows that trajectory of habituation as he developed his definition of practice. His concept of practice furthered the trajectory by providing a clearer philosophical account of how humans acquire virtue. As evidenced above, Dykstra and Bass grounded their work in Christian education within MacIntyre's project. Developments within neuroscience illuminate a

remarkable accuracy that these pre-modern neuroscience thinkers had as regards the necessity of habituation within community as an essential element to brain learning.

II. Habit learning and empathy in neuroscience

Neuroscience over the last twenty years has examined the way the brain learns. Steven Quartz suggests that the single most important finding of neuroscience over the last twenty years has been the critical and central role of habit system in all of our behavior (2011).[1] He argues that habits and habit systems comprise an essential middle role between two competing behavior systems in the brain. The Pavlovian system operates at the neurological level. That instinctual system, which is innate and hard wired, operates without much engagement with the prefrontal cortex. In that system our motor systems fire without our conscious effort and often against our own interests. By contrast, the goal system operates within the prefrontal cortex: this system pulls on the other system but it does so in attention filled and purposeful ways. These two systems have strengths but also have significant weaknesses. The former responds rapidly but does not possess enough flexibility to be of use in new situations. The latter possesses great flexibility, but that flexibility costs speed and becomes too computationally expensive. A brain that learns habits and possess a habit system can occupy a middle ground between those two systems.

The habit system begins with the hardwiring, but allows the reward center in the brain to rewire the brain to accommodate new information. Quartz uses the example of a bee programmed to land on yellow flowers and receives nectar (2011). If scarcity did not exist the Pavlovian system would work without much error. The problem arises when other bees possessing that natural instinct to land on yellow flowers do so and the nectar diminishes. The first bee returns to the yellow flower, but does not receive the nectar reward. The bee then explores and lands upon a purple flower. The bee lands on the purple flower and receives nectar. The "bee brain" now creates a representation of purple with nectar. Neuroscientists label this learning a habit because the bee has associated the purple flower with the reward of nectar. The bee uses a single brain cell to build this regularity of behaviors. That basic structure exists across species, although the structures vary in complexity and neurochemicals (Quartz 2011).

The human brain comprises the most complex form of that basic structure. That complexity enables human beings to learn from others and for themselves. Research in neuroscience has discovered ways in which the human brain vicariously learns, related to habit and empathy (Keysers 2011).[2] Christian Keysers research draws upon the accepted understanding of mirror

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[1] The following is from Steven Quartz 2011. Response to "Why Habit Matters: The Bodily Characteristics of the Virtues". Paper read at Understanding Virtue New Directions Bridging Neuroscience and Philosophy, May 19, at Pasadena Community Church, Pasadena, CA. Travis Research Institute has made the keynote conference proceedings digitally available: http://www.travisinstitute.org/understanding-virtue/.

[2] I learned of the following studies from Christian Keyser 2011. The Vicarious Brain: The Neural Basis of Empathy, Learning by Observation, and Sociopathy. Paper read at Understanding Virtue: New Directions Bridging Neuroscience and Philosophy, May 20, 2011, at California Institute of Technology, Pasadena, CA. I did refer to the original publications but only learned of them through Keyser's lecture. Travis Research Institute has made the keynote conference proceedings digitally available: http://www.travisinstitute.org/understanding-virtue/.

neurons of monkeys by the neuroscience community: premotor neurons respond during action execution; ten percent of those neurons fire when monkeys observe the same action execution; and neurons do not fire when observing movements that do not carry the same meaning, even if they are similar (Keysers 2003). His research developed from the findings of monkey studies and has furthered it through human research.

His studies have utilized functional magnetic resonance imaging (fMRI) to record individual human brains. Most of his studies rely upon a similar methodology: first, image an individuals' brain while directly doing or experiencing something; second, image that individuals' brain while observing the same action or experience; third, explore variables and image brains while observing the same action or experience; finally, the overlaying of images reveals that some of the same neurons fire when the subject performs the action or has an experience as when the subject merely observes an action or experience. In two early studies evidence for human mirroring was found through imaging participants' brains while observing an action and that specific neural systems mirror particular acts (Gazzola and Keysers 2009).

Neuroscientists have discovered specific regions of the human brain that mirrors the observed sensations and emotions of others. Researchers have found that overlapping neural firing occurs in the sensorimotor cortex, which is the primary processing location for bodily sensations (Keysers 2004). Previously scientists believed that area of the brain to be active only during experiences that happened to a person's body, but Keyser's team found that area active when observing someone else being touched (Keyser 2011). Similarly, a study into emotional mirroring found overlapping neural firing in the insula region—a region of the brain that had already been linked to deeply embodied reactions (Wicker and Keysers 2003). Wicker and Keyser's study demonstrated mirroring of disgust; other studies have linked it to seeing someone's pleasure (Jabbi et al. 2007) and pain (Lamm, Decety, Singer 2010). Moreover, mirroring response in the insula region has been demonstrated to occur through visual and through reading or hearing narratives (Jabbi et al. 2008). Keyser concludes from all of this research that virtue and empathy may indeed have grounding in biology, but he carefully acknowledges that this biology only prepares us for the possibility of virtue and empathy (2011).

The vicarious human brain learns from others, yet an individual does not learn all that it sees. Across species the brain learns best through success, and the law of effect demonstrates that successful responses get stamped in to the brain. Vicarious learning, like in the bee brain above, takes place through the reward system. Consider the following three scenarios. First, observing his sister return a wallet to a stranger the child takes part in the satisfaction his sister receives in doing a good deed. That response gets rewarded when the owner of the returned wallet thanks the virtuous sister. The sister acted with the virtue of honesty by not keeping what did not belong to her. Second, if the sister's act led to reprimand she and her brother would not receive the expected reward, and the unmet expectation creates a higher learning response (Quartz 2011). Third, if the young child observed his sister find the wallet and take the money to purchase something she wanted with no negative consequence that becomes the reward. In the two latter scenarios the young child does not learn virtue, but rather vice. Thus, the same neurological firing of the vicarious brain may lead to very different habits (Keysers 2011).

The neurological response of the reward system operates in all three of the above scenarios. But narratives that shape a way of life can counteract the negative learning outcomes. Biology merely learns to act on the behavior that receives the greatest reward. In the second scenario, the

sister and brother likely learn that be that being virtuous does not get rewarded. In the third example, the sister takes the money and rewards herself with a wanted purchase the brother learns that not being virtuous leads to a good reward. Biology pushes us to the greatest reward regardless of its morality: it simply does not occur to biology to ask whether theft is moral or immoral. Virtue theory hopes that through habituation one comes to love the virtuous response regardless of the reward, partly because the community's narrative says that is a well-lived life. In Christian theology narratives that point to divine love, or kenotic ethics, urge the faithful to transcend our biological reward system as a sole basis for behavior.

The reward system of habit learning can lead to virtue or vice, which reveals that biology prepares us for empathy and virtue but does not guarantee it. Neuroscience itself strengthens that claim, as research has explored the nuances of mirroring and empathic response in human subjects. One study forces the questions of what researchers mean by empathic brain response: in that study researchers repeated the action execution and action observation but also included an industrial robot arm doing the same movements as the human hands. They confirmed that mirroring occurs, but also discovered that the human brain similarly fired when a participant observed the action performed by an industrial robotic arm (Gazzola et al. 2007). Mirroring may simply be a self-projection and not prosocial empathy (Keysers 20110).

Other studies have specifically explored how humans modulate their mirroring, empathic brains. Published findings to date reveal four broad areas of down regulating mirroring response, a decrease in the firing of mirror neurons.

1 The intensity of the pain or emotion displayed modulates neural firing.

2. Men—but not women—tend to down regulate neural mirroring based upon the perceived character of the person in pain. When the person in pain was perceived as fair and likable their neural firing was greater than when the person was viewed as unfair.

3. Context correlates to modulated mirroring. Neural firing lessened when observed pain was understood as part of successful medical treatment and when directing attention to another task, as in counting hands in a picture instead of on the pain expressed in the image.

4. The experience of the participant modulates neural response. This was demonstrated in an acupuncture study (Hein and Singer 2008).

5. In group and out group membership significantly affected neural firing and pro-social behavior. The study found among same soccer club affiliation—in-group members—stronger brain responses in the anterior insular cortex, which has been associated with empathic-response and prosocial behavior, than between fans of opposing soccer clubs—out-group members. The study demonstrated a neurological difference when in-group or out-group members experienced similar pain, suggesting "the decision to engage in or refrain from costly helping may result from the interplay between two competing motivational systems . . . which of the two systems is dominant in a concrete helping situation seemed to be determined by the evaluation of the person (Hein et al. 2010).

These studies into the modulation of brain mirroring and prosocial acts underscore Keysers' measured conclusion, these simple neuromechanisms provide building blocks to good acts but they themselves are not prosocial acts (2011).

III. From neuroscientific empathy to empathic ethics

Modern neuroscience evidence shares a similar conclusion with myriad thinkers throughout Western history: empathy is necessary but insufficient for ethics. Adam Smith in

Moral Sentiments argues that sympathy (a near synonym for some current meanings of empathy) is necessary for ethics, but nevertheless argues in *The Wealth of Nations* that trade does not result from goodwill. So too, Thomas's thought requires the virtue of charity, and yet he implies that one cannot rely upon it; hence, taking surplus of another to secure one's necessity is not stealing. In contemporary times JD Trout makes a similar observation as regards an empathic moral sentiment in Thomas and Smith: Trout cites them both in the opening paragraph of *The Empathy Gap* (2009). Trout also judges empathy as insufficient, seeking to use emotional empathy as a basis for cognitive decisions to make structural, societal change (2009). Those brief observations from three distinct historical periods suggest that neuroscience and our biology will not get us to empathic, prosocial acts.

So far I have demonstrated that empathy features as a concern within the religious education, neuroscience and philosophical literatures. Further, the review of neuroscience suggests that brain learning, as we now understand it, illuminates remarkable consistency with the explicit role of habituation in the virtue tradition. I have also located myself within the practices literature of Christian education, which does not exist apart from the virtue tradition. My implicit claim thus far has been to provide a neuroscientific, rather than philosophical reason for the importance of Christian practices. I have left unexamined how virtue theory intends to habituate a person so that she might know how to act virtuously in a situation until now. I shall use the practice of Bible study informed by key insights from neuroscience to proffer empathic response as a standard of excellence and explain how a person learns to act virtuously.

IV. Practicing empathic Bible study through a neuroscience lens

Most agree that the practice of Bible study requires interpretation. The Christian community has interpreted the parable of the Good Samaritan as a story offering a moral exemplar. On its surface the question asked by the lawyer—Who is my neighbor—could have received a simple response by Jesus: "Your neighbor is anyone in need." Often the parable has been reduced to that meaning, but there are subtler, more profound meanings of the parable. Recent scholarship has suggested that parables make use of stock characters and expected social roles (Hultgren 2000, 9, 14-17; Scott 1989, *Prolegomena*). Jesus' response to the lawyer with a parable of empathic, prosocial behavior was crafted with three stock figures—a priest, a Levite and a Samaritan. Social science interpretation of this parable has focused on the social roles and status of each character. For my purpose the reasons for the behavior of the priest and Levite can be excluded: all commentators agree that the parable condemns their behavior. The Samaritan by ethnic group, and possibly also by employment, would have been despised (Hultgren 2000, 98; Malina and Rohrbaugh 1992, 347, they argue the Samaritan was likely a wealthy trader). Significantly the term neighbor was generally reserved for fellow Jews or proselytes (Hultgren 2000, 98). The parable offers a contemptible out-group member as the moral exemplar, and it intentionally identifies the despicable character as a neighbor who acts with divine compassion (Hultgren 2000, 101).

Hultgren, Malina and Rohrbaugh are among the scholars who proffer that the parable seeks to subvert the human tendency of making others into despised enemies. Recall from earlier, neuroscience demonstrated a strong enough negative opinion about someone in need leads humans to down regulate their neural firing, refusing to act compassionately. The parable of the empathic, prosocial acting Other has much less ring to it, but it does lend itself to an interdisciplinary interpretation in any context. Religious educators have the potential to offer up

to their students or congregation members a different parable that makes a similar moral point. Religious educators should deeply embed parables in specific contexts to offer moral exemplars that work to erode negative conceptions of despised persons.

The practice of calling attention to the good action of out-group members in biblical and contemporary narratives offers a potentially powerful antidote to human proclivity of in-group and out-group. Part of the parable's power is the unexpected radical statement—the despised one is good, a neighbor. Unfortunately, such story telling looses power as consequence of desensitization.

Religious educators have made use of perspective taking, which does not as readily suffer from desensitization. Religious educators have identified perspective taking as a key to teaching for justice (Moore and Bischoff 2007; they provide a literature review). Neuroscience can inform this practice too. First, I noted above that neuroscience studies have demonstrated that narratives can evoke empathic neural firing. Moreover, research has revealed that even persons with psychopathy possess empathic accuracy when asked to do so through perspective taking (Keysers 2011); however there may be different neurological systems at work between mirroring and cognitive perspective taking (Hein and Singer 2008). Nevertheless, the definition of empathy I have used throughout couples cognitive and affective dimension through which another recognizes herself as cared for and understood. Moreover, those who self-reported that they utilize perspective taking during conflict with others showed more empathic brain response (Gazzola et al. 2004) This suggests that religious narratives read devotionally or heard in a sermon can habituate empathic firing. And when combined with perspective taking of characters within a narrative we habituate a necessary component of empathy.

Those strategies function as a standard of excellence since, they partially define and are appropriate to the practice of Bible study. By utilizing perspective taking and embedding new parables in specific contexts to lift up moral exemplars from despised persons or groups the religious educator makes empathic nurture a standard of excellence of Bible study. That practice done over time leads to a virtuous person because as one practices according to the standards of excellence (i.e. well) that individual habituates necessary components of empathic actions. For instance, hearing and rehearing exemplary narratives of despised others hopefully erodes strong enough negative opinions that would prevent compassionate action. In this case an individual comes to know that a Christian helps someone in need regardless of others' negative view of the person in need. Similarly, perspective taking habituates a cognitive act that over time leads to a character trait. A habituated character trait that has been positively correlated to increased empathic neural firing and empathic, prosocial actions (Gazzola et al 2004).

In both of these examples the person learns over time to do the virtuous act in any situation. Aristotle's logic provides that basis for this claim of virtue theory. The truly virtuous person comes to possess both theoretical and practical knowledge, which is wisdom. The former knows only universal principles whereas the latter knows only experience. To contextualize it with the present example: theoretical knowledge seeks to know the limits of aid, and practical knowledge knows that a Samaritan cannot be good, much less a neighbor. The parable subverts both of these by offering a narrative experience that combines new theoretical knowledge—one can only be a neighbor not have a neighbor—with new practical knowledge—Samaritans can be good. Thus, in Aristotelian logic a person who experiences that parable knows both the theoretical and practical which leads to wisdom because she knows that she should act with compassion when a Samaritan is in need. Wisdom becomes fully embodied when she recognizes a need and acts compassionately despite the opposing soccer club affiliation.

V. Conclusion

I started from within the Christian practices tradition, but suggested that too little attention has been paid to how people learn through practices. I filled in that gap by discussing Aristotle and Thomas's understanding of habituation. Further I showed that neuroscience commends habitual learning as the way brains learn thereby offering a scientific reason for practices. I, however, argued our biology does not guarantee virtue over vice. Human experience, context and interpretation modulate neurological response. Consequently, I urged the use of religious narratives that undermine down regulation of empathic brain response and promote empathic action as a standard of excellence within the Christian practice of Bible study.

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