

THE RELEVANCE OF ST. THOMAS' PHILOSOPHY OF EDUCATION TO INFORMATION TECHNOLOGIES AND THE STRUCTURE OF THE HUMAN BRAIN

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Abstract

This paper attempts to reflect on the method of teaching by returning to St. Thomas Aquinas' insights on education. Teaching, as St. Thomas puts it, is nothing else than "the awakening of the power of reasoning in another person." Important to this idea of education as a kind of therapy is the process of discovery. The task of the teacher, therefore, is to create the external conditions for the possibility of discovery. This is investigated in connection with contemporary technologies and with support of findings in the neurosciences.

In *De Magistro* (Question 11, a.1 of *De Veritate*), St. Thomas posed the question of whether humans can teach each other. After considering the possible responses to this question, he concluded that "the teacher inspires the student to understand what he is teaching, just as any cause can realize the potential in another thing." He arrived at this conclusion by treading the middle ground between Avicenna's claim that ideas flow into our minds from the intelligent cause and the Platonic teaching that learning is remembering and considering the things that the soul already knows.

In contrast to these two intellectual positions by upholding the integrity of the material universe, "which is woven together by the order and connection of causes." St. Thomas wrote that "the primary cause, from its outstanding goodness, makes other things not only to be, but also to be causes." He thereby endowed with utmost respect the autonomy of secondary causes and the interweaving relationships formed among them because they can awaken in us, humans, "the divine truth which speaks in us through an impression in us of its likeness."

St. Thomas then applied the Aristotelean principles of act and potency to the field of education by asserting that the common seeds of knowing are already imbedded in the knower but they have to be actualized by an external influence through the mediation of the teacher. He believed that these common seeds are self-evident in the principles of non-contradiction and identity which are eventually rooted in our insight into the primary act of being. Thinking is therefore nothing else but taking the paths of thinking towards being. Since the pure act of being refers to God, he is eventually in agreement with Avicenna and Plato that intellectual cultivation is actually the soul's path to God but this path can only be taken, and can actually be waylaid through the material universe.

Teaching, therefore, may be achieved, according to St. Thomas, by means of a teacher's instructions in an Aristotelian manner, on the one hand, and by way of discovery by the students themselves as Plato and Avicenna taught, on the other hand. The former takes

the form of discipline imposed externally by teachers while the latter is achieved by the student's internal powers of natural reason. Thomas gives primacy on the latter because learning eventually depends on one's own reasoning and teachers will have to first discover what they teach to their students. As the popular adage puts it, "we cannot give what we do not have;" we can teach only what we actually knew.

Teaching, as St. Thomas puts it, is nothing else than "the awakening of the power of reasoning in another person." He compares it to the art of healing: "just as the doctor is said to cause health in the sick man with nature working, so also one is said to cause knowledge in another [by means of reasoning]"

St. Thomas' Existential Methods of Learning/Teaching

As a therapeutic activity, teaching is best achieved by abiding by the laws of nature, that is, by beginning with what the knower already knows. Words and signs are meant to point to the direction of what is yet to be known from the standpoint of what is known already by the knower. When words and signs themselves become the norm of the reality that they are supposed to merely refer to, learning becomes a mere parroting of sounds signifying nothing.

Learners, therefore, must always tie down the concepts and words of their teachers to that which is really real. Thomas' famous parting words that what he has written seems like straw compared to what he has seen emphasizes the primacy of vision and discovery in the processes of learning over and above textbooks and teaching manuals. The latter are meant to serve as guideposts, mere directional concepts towards that which is real.

Our grasp of ultimate reality, admittedly, is always mediated by finite beings. Yet, the primary act of being conditions all possible modes of being, including our own acts of breathing, walking, listening, waking, sitting; even the realities beneath our names, our bodies, our stomachs and innards. In our acts of affirming the reality of contingent beings, ultimately become aware of our own very being. The reality that we are: "I am, I exist."

This personalized path to being serves as the primary analogate, the starting point, for all other possible experiences of being that extend from the material world below and up to the spiritual world above us. The shortest way to our knowledge of the world and of God, as St. Augustine discovered early on, therefore, is through ourselves. It is in this sense that St. Thomas may be appropriated today as the existentialist par excellence. His philosophy offers an immediate and indubitable path towards an experience of the personal act being.

But in order to arrive at an insight into the act of existence, the mind must proceed, à la Platonic dialectics, through discourses that ascend towards increasing degrees of universality until everything else is ultimately reduced to the act of being itself. Under the guidance and protection of the logical principles of non-contradiction and identity the

mind must systematically proceed in its path or missteps towards the abyss of errors that lie between the cracks of absurdity and inconsistency.

The paths of knowing proceeds by way of discovery; beginning from the awareness of shared experiences with other beings and increasing the intensity of the level of participation with other existents as one ascends towards the ultimate act of existence. These paths are longer or more winding depending on whether one goes down, sideways, or upwards in the ladder and levels of beings. By reducing the focus of intelligence to the mediation of sensation and gravitation, one steps down to the world of animals, plants and minerals while as one intensifies the intellectual experience of being with immaterial forms of being, the soul ascends towards the spiritual world of human souls, the choir of angels, and God, the most intensive act of being.

The Contemporary Relevance of St. Thomas' Philosophy of Education

New learning technologies such as the internet and the other communication technologies require the awareness of the important role of discovery in the processes of learning. These virtual technologies serves as teachers, textbooks and lesson plans that mediate and instrumentalize learning processes in so far as they lead to the process of discovering actual reality itself. The learner should be able to critically distinguish, at every point of the inquiry, whether the subject matter at hand is really real, virtually real, or unreal.

Students can get so attached to information technologies to the extent that they are already being governed by them, unknowingly being shaped by their creators and producers. They become prey to the consumerist ethos of technological innovations that threaten to annihilate the autonomy of their very own being. One colleague proposed writing a paper entitled "ipod, therefore, I am" in order to warn the youth from the upper classes of our society about their loss of identity and interconnection with others by being wired up and tied down by the latest gadgets and technologies. Against the backdrop of a consumerist culture that fuels these technologies, one is tempted to respond to my colleagues' unwritten text with a rejoinder: "I shop, therefore, I am."

Bereft of a critical and evaluative mind, these new technologies are teaching luring people become mere consumers, and not producers of knowledge. It is undoubtedly convenient to post and communicate insights and information on the internet through webpages and other digital technologies. But if we merely consume these knowledge without contributing to them by way of production and invention, these technologies will trap its consumers within the ambit of those who ultimately profit from these technologies. Consumers merely adapt themselves to what others have originally constructed for them. Call agent operators, for example, we have to change accents in order to suit American customers and they have to master English and other foreign languages in order to satisfy the mopping up, out-sourcing, operations of medical and legal professionals from first world countries.

They do create jobs in the short and medium term, but in the long run, the rates of consumption will overcome productive capacities if these technologies themselves are

not modified and controlled. Educational systems, unfortunately, also fall prey to this consumerist and subservient ethos of the market place at the expense of the more productive and creative arts that will make the population of recipient technologies the leaders, instead of mere followers, of the world market.

It is therefore important, at this trajectory of intellectual history to retrieve St. Thomas' perennial insight on the primacy of the logic of discovery over the logic of instruction in order to reverse the trend of intellectual domestication as manifested by the third world population's becoming the domestic helpers and cleaning-up operators of the world. The cultivation of the intellectual capabilities of students, therefore, is the key to coping with the fast changing technological innovations.

These new technologies are certainly providing access to the multitudes who would rather have whatever jobs are available under the pains of starvation and subservience to the demands of material and biological necessities. There were even incredible instances when workers demanded the government for lower wages so that they can be hired by overseas contractors.

In the age of information technologies, higher wages is a function of more sophisticated intellectual capabilities and well-cultivated decision-making skills. Improving students' capabilities can be achieved by learning how to follow instructions. The cultivation of decision making skills such as prudential judgment and a sense of fairness toward others requires philosophical reflections that will allow people to discover the broad contexts that they find themselves in.

Confirmations from the Neurosciences

The startling discoveries about the learning systems that constitute the human brain during the last two decades reveal that neural systems are composed of neurons that are connected by synapses that mediate electro-chemical transmitters activated by stimulations from the learners' surroundings. Ideas, therefore, flow through the mind, as Avicenna and Aristotle thought and not immediately from the divine as confirmed by the neural connections of the senses.

Knowledge is also not already achieved prior to human experiences, as Plato once speculated, since knowing is a process shaped and instructed by events and directions pointed out by others. The task of the teacher, therefore, is to create the external conditions for the possibility of discovery; to ignite that "aha!" experience that made Archimedes jump out of the tub and run naked through city streets in order to proclaim his discovery.

Neuroscientists, such as Dr. Paul McLean of the National Institute of Health based in Bethesda, Maryland, report that the human brain is composed of three vortices that emerged from the evolutionary past: the reptilian brain that responds to innate desires for survival, the mammalian brain that is oriented towards caring for others, and the human neo-cortex that allows for planning for the long-term needs of humanity.¹ In May, 2001,

Newsweek magazine published ground-breaking experiments that show how the frontal lobe of the human cortex lights up during meditation, showing the neurological counterparts of religious states such as enlightenment and feelings of awe (May 14, 2001, p.42).

This triadic structure confirms Aquinas' formulation of the three precepts of natural law: (1) "the preservation of human life and all that impedes death," (2) "instinct such as union of husband and wife, the education of children and so forth," and (3) "a natural inclination to know the truth about God and to live in society" (ST I-II, q. 94, a. 2).

Since the human neo-cortex is the most malleable of all the vortices due to its recency in the evolutionary process, educational systems can still mold the development of students by creating the external conditions that support, rather than stunt the natural structure of the brain. Relational and multidimensional modes of thinking, for example, are more in affinity with the natural orientation of the neurons to extend itself towards other neurons rather than the disciplinary regime of instructions that rely on rote memory and inert ideas.

While the latter can aid in the strengthening of existing neural connections, they do not promote the habits of exploration and discovery that are essential to a more effective participation in contemporary technological and innovative societies. This new knowledge about the neurosciences must therefore be adopted to educational systems by creating learning environments that expand and strengthen the neural connections of the human brain.

In the concrete, this will entail allowing students to emerge from their anonymity by making them participate in class discussions and creating learning modules that will allow them to interact with others. Opportunities to participate in activities that promote the common goods of the community instead of competitive exercises that stimulate their reptilian instincts must also be encouraged in order to cultivate the learners' higher faculties.

The triadic structure of the brain also implies that under situations of stress and duress, the neocortex can be taken over by its more primitive parts that make it vulnerable to emotional reactions such as irritability and lapse of judgment.² Learning environments, therefore, must also make room for play and recreation in order for students to optimize the energies of a well-rested brain and to creatively channel the energies of the lower parts of the brain.

In terms of moral education, this information about the brain means that learning environments can be devised to provide for the further development of the human neocortex while starving the passions that fuel its primitive parts. Virtues, as Aristotle and Aquinas defined them, are habituated by human choices even if they have to be moderated by reasonableness.

Conclusion

From the perspective of St. Thomas' educational precepts, human choices are circumscribed by the available ideas that have been discovered by the human mind, while habits are inculcated by following instructions. Repeated choices send new neural connections to the nervous system in the same manner that original discoveries eventually become petrified by instruction manuals. The task of teachers, therefore, is to make their instruction manuals and textbooks alive, just as students have living thoughts that are waiting to be aroused from the dogmatic slumber of social institutions that are turning them into passive consumers of the global market.

The educational endeavors that shape the future of students are therefore living mirrors of the intricate grandeur of the universe that require teachers to share in the creative task of the first cause who has given them the privilege and honor to direct and shape the trajectory of His creation by following the basic principles of learning that will lead human beings to discover the magnificent Being who made other beings be.

¹ Richard Restak, *The Brain* (New York: Bantam Books, 1984), pp. 136-137.

² W. Norris Clarke, "Living on the Edge: The Human Being as Frontier-being and Microcosm," *International Philosophical Quarterly* Vol XXXVI No. 2 Issue number 142 (June 1996), p. 197.