

Mediaeval foundations of modern education: Thomas Aquinas' theory of cognition

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1. Introduction

Our paper on curriculum history is shaped by some present concerns. In many instances in today's social and education theory literature there is increasingly recognized a kind of sense of crisis (Goodson 1997; Jackson 1992; Pinar et al 1995). On most general level, this crisis has manifested as a long-standing debate between modernity and post- or late or "second" (Beck) modernity. The postmodernists' claim for the disappearance of grand narratives whatsoever or the 'death' of the subject might have been considered as taken-for-granted premises of many theoretical endeavour in curriculum or social studies. Paradoxically yet, in the light of the ahistorical nature of the postmodern attitude, the postmodernists' claim has *created an urge to critically revise the asserted rupture between modernity and postmodernity* and to take a longer look at the genesis and intellectual roots of modernization processes. As a result of this historical awakening in curriculum and social theory some of the most interesting and controversial conclusions maintain that we cannot be postmodern, for we have never been modern (e.g. Delanty 2000). His thesis argues for the continuity of Western thought and theoretical mentality rather than ruptures or breaks; hence the Enlightenment, for instance, was not a break in human history, but rather it continued central traits in classical thought, notably those relating to the issues of scepticism, discursivity and reflexivity (ibid.). The intellectual debt of our paper is owed to this kind of theoretical conception of social history in general and curriculum history in particular. We make a tentative effort to challenge the received view on modernity as the beginning of the Grand Pedagogic Project and to extend the intellectual origin of modern educational and curriculum thought to the supposed Dark Ages, to the 13th century world of Thomas Aquinas. Our claim will be that it might be then when the intellectual framework for the coming Modernity with its curricular manifestations was laid down upon which, subsequently, the generations of Comenius and Descartes, and then, those of Kant and Herbart were able to build their influential theories. In this sense we argue for the 'modern' nature of Thomas St Aquinas' theory of cognition and education and its institutionalization in the university curricula of his times.

2. Contextual remarks

We think there are good reasons for considering the 13th century the most significant single century regarding the western educational system and its origins. To start with let us make some contextual remarks in order to get an idea of the intellectual atmosphere of the mediaeval schoolmen.

The life and work of Thomas Aquinas were marked by the rise of universities in the 13th century. Among the first universities was the University of Paris B and that is where Thomas Aquinas finished his studies in theology and later worked as a professor as well. The University of Paris became the theological and philosophical centre of the Christian world.¹ Higher education was institutionalised for the first time and became tied to fixed rules and forms, that is, curricula. Faculties of liberal arts i.e. of philosophy, theology, medical and law were established as well.

Secondly, a development of greatest significance was the reception of the complete works of Aristotle in Latin translations from the second half of the 12th century on. Until this, only Aristotle's texts dealing with logic were known, and the intellectual atmosphere originated mainly from such authors as Augustine, Boëthius and Pseudo-Dionysios - which all were strongly influenced by Platonism.² The study of Aristotelian philosophy spread rapidly through all the universities. At the same time different branches of knowledge were organised anew according to the divisions of the texts of Aristotle: ethics, politics, physics, metaphysics and so on.

Thirdly, the first curricula were stated in the statutes of universities. "A student's curriculum consisted of the list of books required for passing a degree, together with an indication of the time required for the specific parts of the curriculum. Standard curriculum was supplemented by readings of special texts and disputations on freely chosen subjects."³ According to Hastings Rashdall the first curriculum was set in the University of Paris by Robert Cruzon in 1215 with the tasks of the master and the requirements that a student had to meet to attain the degree of *baccalaureus*, or later, that of *magister*.⁴ For example, on March 19th 1255, it was stated officially at the University of Paris that all the works of the Philosopher B that is the name by which Aristotle had become known B must be included in the lecture program in the faculty of arts. All theoretical discussion in universities was based on Aristotelian conceptual framework and the division of the sciences was Aristotelian as well. A *magister* was also given the *licentia ubique docendi*, that is, the right to teach everywhere. In the statutes of the mediaeval university were also prescribed the texts read and exposed in the so-called *lectiones*, the most important educational method - another being the *disputatio* about a question set by the master on various themes and subjects.⁵

Fourthly, there happened a great change in the idea or concept of the teacher and student, when the prevailing Platonic view of Augustine was gradually replaced with the Aristotelian idea of human

with certain cognitive powers and faculties (*potentiae*⁶, *facultates*). Thomas Aquinas did a great work explaining the philosophy of Aristotle in general and concerning the human cognition as well. As a matter of fact Thomas put forward a coherent psychological-metaphysical theory of cognition, the effects of which on the later centuries have been tremendous. To mention just one example, the so-called British empiricism (e.g. Locke, Hume) drew heavily on mediaeval cognition-theories based on that of Thomas Aquinas (just think of the vocabulary the empiricist employ, when speaking of “ideas”, “imagination”, “representations” and so on, or of the causal relation between sense-objects and the cognizer). Aristotelians did not approve the Platonic idea of *anamnesis*-knowledge (that is, innate knowledge: doctrine of *anamnesis* presupposes the everlasting memory of the immortal soul) and its implication, namely, epistemological rationalism. According to Aristotle and Aquinas the presuppositions of knowledge are both empirical sense-data and an active human mind. But knowledge origins from sense-perception - not *in speculatione contemplativa*. That is why it is convenient to call the Aristotelian-Thomistic epistemology empirical.

Following Aristotle Aquinas was of the opinion that human being in itself is capable of gaining knowledge of the reality outside. Man has by nature certain cognitive potencies (*potentiae*), which may be actualised resulting knowledge. Extramental things are actually sensible but only potentially intelligible. The Augustinian doctrine of divine illumination was put aside. Divine illumination was no more necessary for the process of cognition to happen. Among other things this meant that the teacher could mediate his teaching to the student and the latter was capable of taking the teaching in without any third parties (such as God or intellect outside man). Thomas Aquinas wrote: “The inquiry of philosophy has as its purpose to know not what men have thought but what the truth is about reality.”⁷ This shows clearly the optimistic view on human capacity of gaining knowledge. Truth about reality is something a man can reach. It also can be taught.

Another essential Augustinian doctrine, namely that of the predestination, was as well rejected by the Aristotelians. Human beings were no more seen as determined to “the city of god”, the Jerusalem or to Babylon, the city of evil. Approving the idea of predestination leads of course to a pessimistic view on human education: for those predestined to the city of evil not even the best education possible can do no good still less save them from their destiny. According to the Aristotelian view, on the other hand, human beings are considered potentially good and equal in what comes to powers of cognition (and this is the same thesis put forward also by Descartes some four centuries later), and this resulted in educational optimism.

Fifthly, there emerged the “scholastic method” as the basis for teaching in the mediaeval university. Scholastic method consisted of educational methods such as lections and disputations - the methods we still find in the university today. In addition to this there appeared also new species of literature resulting from the habit of writing down lections and disputations as well as other educational activities in the university. That is why we speak of “questions”, “articles”, “summas”, “disputed questions”, “commentaries” and so on. For example, the *Summa theologiae* of Thomas Aquinas consists of 512 questions divided in 2669 articles in total - even though the author never finished the work but instead left it be and put it aside two years before he died.⁸

3 Thomas Aquinas' theory of cognition

It is convenient to start the treatment by defining the words “cognition” and “knowledge” before trying to explicate Thomas' theory of cognition. Aquinas has no term corresponding exactly with the English word “knowledge” but let us try to say something about the issue, anyhow.

Cognitio is Aquinas' basic epistemic concept but it does not equal to knowledge, for Thomas says we can have false cognition, too. Thomas uses the Latin word *scientia* as the paradigm for knowledge. In his *Commentary on the Posterior analytics* Thomas says that to have *scientia* with respect to something is to have complete and certain cognition of truth. Truth, in turn, according to Thomas, is correspondence between cognizer's intellect and object or reality, or, as Thomas says, *adaequatio intellectus et rei*. However, Thomas seems to allow that for example our possession of raw sensory data can constitute cognition as well. Cognition, then, is a broader concept than *scientia*-knowledge. In other words: all *scientia* is cognition but all cognition is not necessarily *scientia*.

According to the opening statement of Aristotle's *Metaphysics* “all humans by nature desire to know”, or in latin, “omnes homines naturaliter scire desiderant”. In his *Commentary on the Metaphysics* Thomas explicates this renowned statement. Aquinas, however, does not build his philosophical system around a theory of knowledge or cognition. He bases his arguments on ontology and metaphysical essentialism instead of empirical evidence. The desire to know is “by nature”. It is something belonging to the very metaphysical essence of man, it is rooted in human nature. Every human being aims at knowledge because he is a human being. That is why Aristotle could write “all humans”.

Thomas Aquinas adopted among other things Aristotle's theory of actuality and potentiality as the basis of explaining things and phenomena. Aristotle explained the kosmos in a teleological way and sought “final causes” (*causae finales*). Things aim at their final causes and toward actuality from the state of

potentiality. Something is perfect insofar as it is fully actualised, not insofar as it is in state of potentiality. Now, the principle by which a human being is human is the rational soul or intellect (cf. Aristotle's definition of man: *animal rationale*). According to Aristotle and Aquinas human beings possess no innate knowledge but instead cognitive powers to have access to all things in principle. In other words, human beings know first potentially and only after having used their cognitive capacities may that knowledge be actualised. Knowledge, then, is the actualisation and perfection of human potentialities, and so Aristotle could say all humans by nature desire to know, and living by nature is good. For the same reason Aquinas wrote in his *Commentary on Aristotle's de Anima (On the Soul)*:

It is clear that all scientific, systematic knowledge is good. But a thing's good is that in accordance with which the thing has its being completed or perfected, since that is what each thing seeks and desires. Therefore, since scientific, systematic knowledge is the completion or perfection of a human being considered as such, it is its good.⁹

Aquinas - following Aristotle - abandons Plato's doctrine of innate ideas, or the *anamnesis*-theory, which the neoplatonists and Augustine had adopted. Aquinas also rejects Augustine's learning of *illuminatio*, that is, that human beings need divine illumination to gain knowledge. Aquinas speaks of a natural light, *lumen naturale*, instead. This natural light in itself is sufficient for the knowledge of truths, and all knowledge originates from the senses:

It is natural to a human being to attain to what is intelligible through objects of sense, because our knowledge originates from sense.¹⁰

This Aristotelian-Thomistic view also contradicted the powerful and prevalent tradition in the Middle Ages, namely that of Augustine and his followers, for example Bernard of Clairvaux in the 12th century. According to this tradition, the vice of curiosity is something very bad. Bernhard writes:

There are people who want to know solely for the sake of knowing, and that is scandalous curiosity.¹¹

In his *Confessions*, book X, Augustine says curiosity is "a vain desire cloaked in the name of knowledge". Philosophy and knowledge for its own sake is bad because knowledge should only be oriented to salvation and faith. The only things worth acquiring knowledge of are God and the human soul. Augustine writes of philosophers and their inquire into the nature of things:

Because of this morbid curiosity B men

proceed to search out the secrets of nature, things outside ourselves, to know which profits us nothing, and of which men desire nothing but to know them.¹²

This is something absolutely different from what Thomas Aquinas teaches. The desire to know things and their causes is natural and something good. Thomas writes:

Some of the sciences are practical and others theoretical. These differ in that practical sciences are for operating, and theoretical for themselves. Theoretical sciences are good and honorable, but practical sciences are praiseworthy only. Every theoretical science is good and honorable.¹³

The Augustinian tradition of condemning the vice of curiosity plays no role in Aquinas' work stamped by the new world of the university.

3.1 Formal causality

In the *de Anima* Aristotle explains human cognition using the concepts of actuality and potentiality. Thomas Aquinas adopts Aristotle's view in general but develops it to some extent. The basic Aristotelian idea is that "soul is potentially all things", and cognition involves its actually becoming a given thing or being assimilated to that thing in a certain way. Thus Thomas needs metaphysical theories in order to explain the human soul and the object of human cognition.

3.1.1 Object of cognition

According to Thomas sense perception is the **condicio sine qua non** cognition is possible. Senses set the mind in contact with things existing outside us. Senses also supply the mind with the materials for the formation of ideas. We do not, for instance, first have the idea of man and then later discover that there are men. We first become acquainted through sense-perception with individual men and we are thus enabled to form the abstract idea of man thanks to "active intellect" (*intellectus agens*). The proper object of the human mind (in this life, one could add) is the nature of the material thing (*quidditas rei*). Thomas writes:

The first thing which is known by us in the state of our present life is the nature of the material thing, which is the object of the intellect, as has been said above many times.¹⁴

We cannot know the meaning of a word signifying a material thing unless we have learned the meaning ostensibly or by definition or description. And in the

long run we shall arrive at words the meaning of which we must have learned ostensively, that is, by having our attention drawn to instances of what they stand for. The objects of cognition are the particular corporeal substances to which we have access through sense perception. In accordance with his metaphysics, Aquinas explains that a cognizer is assimilated to an object of cognition when the form that is particularised in that object comes to exist in the cognizer's soul.

Frederick Copleston has pointed out that Aquinas could well have endorsed Immanuel Kant's famous statement in the introduction to the *Critique of the Pure Reason* according to which "though all our knowledge begins with experience, it by no means follows that all arises out of experience" provided, of course, that the statement is taken in itself. Copleston wants to point out that Kant and Aquinas both said the human mind also has an active role in the process of cognition. We shall return to this later.

Let us proceed to Aquinas's account for the soul's capacity for being assimilated to objects. Thomas's analysis of the process by which we come to know can be divided in three stages:

1. Sense-objects and "external" sense-organs
2. Sense-impressions and "internal" senses
3. Intellect, abstraction and concept-formation

3.1.2 The process of acquiring knowledge

External senses

As an animal, human being possesses a sensory cognitive power that gives him cognitive access to the particular corporeal substances and accidents that inhabit the external world. The first stage in the acquisition of knowledge is sense-perception. There are five sense-organs and corresponding sense-powers, which Aquinas calls "external" or *sensus exteriores*: thus we see, hear, taste, smell and touch. These sense-organs are affected causally by external objects, and we receive sense-impressions. The eye, for example, sees colours but it would not do so unless it were affected by its object through a *medium*, which is air. The sense-organ receives an impression and undergoes a physical alteration. But there is more to it than mere physical change, for, as Thomas says, "if physiological change sufficed for sensation, all natural bodies would have sensations when they underwent change".¹⁵ Instead or sheer physical phenomenon sensation is a psycho-physical process in which a sensible form, *species sensibilis*, is received. This sensible form must be in a way material, for, as Aristotle says, "like is in fact acted upon by like"¹⁶ and so a material object as a cause must produce a material effect, that is, a material sensation in a material sense-organ. According to another metaphysical principle of causality an effect resembles always its cause and a

cause always produces its like: *omne agens agit sibi simile*. That is why the effects a material cause produces are material as well.

Every one of the five external senses has its proper object: the object of the eye is colour, that of the ear is sound and so on. From this follows, that there are only discrete sense-impressions. Aquinas says that the sense of sight is able to distinguish one colour from another B for example the impression of blue is different from the impression of red B but the sense of sight can not distinguish or compare colours from sounds, since it does not hear. This is one reason making it necessary for Aquinas to postulate Ainternal senses@ to synthesize the different sense-impressions from the five sense-organs. Aquinas speaks of inner senses because he wants to point out clearly that we are dealing with the sensitive part of the soul, which is common to man and animals, not with the rational part of the soul.

Internal senses

Aquinas relied very largely on Aristotle when postulating the different powers or faculties that he called internal senses. In short, the four internal senses of the human being are:

First, the *sensus communis*, that is the "common" or "general sense" performs the function of distinguishing and putting together the data received by the various external senses. The modern psychologist would say the general sense produces a sensory synthesis. Aquinas writes:

The proper sense judges of the proper sensible by discerning it from other things which come under the same sense; for instance, by discerning white from black or green. But neither sight nor taste can discern white from sweet: because what discerns between two things must know both. Wherefore the discerning judgment must be assigned to the common sense; to which, as to a common term, all apprehensions of the senses must be referred: and by which, again, all the intentions of the senses are perceived; as when someone sees that he sees.¹⁷

The second internal sense is called *imaginatio* or *phantasia* or "imagination" which conserves the forms received by the senses in the earlier stages of the cognition process. Imagination produces an *imago* or *phantasma*, a presentation consisting of the form and the sense-object's "material conditions". We keep in mind that we still are dealing with the sensitive part of the soul and thus are still in the material "level" of the cognition.

Thirdly, there is the *vis cogitativa* or "cogitative power", which Aquinas also calls "particular reason". This power makes it possible to

estimate the perception and for example apprehend a certain sense object be avoidable, desirable, useful, and so on.

The fourth internal sense is the *vis memorativa* or “memory”, which conserves the apprehensions made by the particular reason.

Intellect

Sensory cognition deals only with particular facts and material things. But if human beings are to gain universal knowledge, that is scientia, they must have intellectual cognitive powers by virtue of which they are able to transform the enmattered, particularized forms existing in sensible objects into what Aquinas calls intelligible species. The intelligible species are eternal, universal and beyond all change. They reflect God’s essence in a deficient and imperfect way but this is the closest a man can get to God in this life.¹⁸

In intellectual cognition the cognizer is assimilated to the object of cognition and is informed by the intelligible species the intellect has abstracted from the image of the sense-object. To “be informed” means literally that the metaphysical form or *forma* of the object comes to exist in the intellect in a certain way. First, insofar as it exists in the object, it is particular and merely potentially intelligible. Then, after having been received to the intellective soul it is there in a mode of existing in which the form is universal and actually intelligible.

According to Aquinas everything - with the exception of God - consist of substances and their accidents, the simple elements of reality. In intellective cognition we possess various substantial and accidental forms, which Thomas calls “intelligible species” insofar as they are abstracted from their enmattered conditions in the particular corporeal substances with which we have sensory contact. Intellect forms concepts on the basis of these intelligible species. This is what Aquinas calls the first operation of the intellect. Spoken and written words signify these mental concepts universal and the same for all. Here Aquinas follows Aristotle’s so called theory of signification introduced in the first chapter of the *de Interpretatione*.

But the simple elements in reality exist together in complexes: particular accidents inhere in particular substances. That is why the intellect must have the second operation, that is the ability to manipulate, or, as Aquinas says, compound and divide the concepts of the first operation to form subject-predicate - propositions isomorphic with reality. Intellect is the power by virtue of which we can be assimilated in this way to reality, and by virtue of intellect’s activity of understanding we can both grasp the natures of things and use them as constituents of propositions.

This Aristotelian-Thomistic metaphysical view is called realistic, because according to it the

same metaphysical form exists in two different places at the same time: as enmattered in the sense-object outside the mind and as immaterially actualised in the intellect. For the same reason philosophers speak of “formal causality” when dealing with Aristotelian theories of cognition. Sense-objects are actual and cause the sense-organ to receive sensible species and thus cause the metaphysical form to move gradually through different stages from the object to the intellect. The universe as a whole is intelligible and human beings are part of its hierarchical structure. The human intellect expresses the same intelligibility as the reality outside of it.

Cognition, however, is not restricted to the sort of intake of information made possible by sense perception and understanding. Human beings are also able to acquire cognition of new things by reasoning discursively on the **basis of** things already cognised. By virtue of its distinct activity of reasoning, or ratio, intellect enables us to infer certain propositions from other propositions.

Conclusion

Aquinas’ theory of cognition in many ways rendered as a precursor of modern notions of human subjectivity and education. His theory overlapped Kant’s Copernican revolution while emphasizing human mind as an active agency, not only as a passive mirror of nature and social reality. Thus Aquinas decisively contributed to the coming shift from theology to epistemology in philosophical, educational and curriculum discourse. This shift got its explicit expression in Rene Descartes’ theory of human knowledge which subsequently formed the pragmatic and secularized basis of his modernist notions of education and curriculum (see Autio 2002, ch 2). Politically, these epistemological revolutions turned out far-reaching while stressing the educability of every human being and hence the deeply modernist notion of educational equity.

Endnotes

¹ Of course, the relationship of scholastic theology and philosophy itself was a major question among schoolmen and it can be said to have been one of the main reasons of the so called Paris condemnation in 1277 when the bishop Stephen Tempier banned a total of 219, primarily Aristotelian doctrines as heretic. See e.g. Kenny & Pinborg 1982, which includes an article on the condemnation.

² E.g. Brown 1998, 190 B 191.

³ Kenny & Pinborg 1982, 18 - 19.

⁴ Rashdall 1936, 439 B 440

⁵ Brown, *ibid*.

⁶ *Potentia* was the latin word for greek *dynamis*.

⁷ *Commentarium in libro Aristotelis de Caelo* I.22

⁸ On methods see e.g. Kenny, Anthony & Pinborg, Jan, *A Medieval philosophical literature@* in Kretzmann & Kenny & Pinborg, 1982, s. 11 - 42

⁹ AQuod autem omnis scientia sit bona, patet; quia bonum rei est illud, secundum quod res habet esse perfectum: hoc enim unaquaeque res quaerit et desiderat. Cum igitur scientia sit perfectio hominis, inquantum homo, scientia est bonum hominis. @ In *de An.* I.1.3

¹⁰ *Summa theologiae* Ia, q. 1, a.9

¹¹ *Sermones super Canticum canticorum*, sermo 36

¹² *Confessions*, Book X.

¹³ [S]cientiis autem quaedam sunt practicae, et quaedam speculativae: et hae differunt, quia practicae sunt propter opus, speculativae autem propter seipsas. Et ideo scientiarum, speculativae, et bonae sunt et honorabiles, practicae vero laudabiles tantum. Omnis ergo scientia speculativa bona est et honorabilis. In *de An.* I.1.3, translated by S.S.

¹⁴ *Summa Theologia* Ia, q 88, a.3.

¹⁵ *Summa Theologia* Ia, q 78, a. 3.

¹⁶ Aristotle, *de Anima* II,5, 416b

¹⁷ *Summa theologiae* Ia, q. 78, a. 4, ad 1

¹⁸ It is not possible for a man to know the essence of God (*essentia Dei*) in this life. By way of analogy it is possible to get a remote idea of what kind of being God must be and that is all. Aquinas says we can not know what God is (*quid est*) but we know that He is (*quod est*). God is the only being in which existence (*esse*) and essence (*essentia*) are identical.

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