

ENGAGING THE RELIGION-SCIENCE DIALOG: FORMATION OF THE “WHOLE” STUDENT IN AN UNDERGRADUATE LIBERAL ARTS UNIVERSITY*

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ABSTRACT

Liberal Arts curricula in US Catholic Universities exhibit an un-integrated approach to philosophy, theology and science. Theology curricula do not integrate a spiritual experience or include a student’s cultural experience of religion. Students often select from three epistemological approaches to numerous complex problems for two reasons: 1. the nature of the curricular silo, or 2. by opinion. Because the silo problem is usually generated at the faculty level, this has direct repercussions amongst students and reinforces a silo mindset. We intend to address 1. academic core silos, and 2. development of a pseudo-epistemological hierarchies based on silo identity and opinion. Our proposed resolutions include 1. formation of academic communities, and 2. faculty-student and student-student mentoring.

APLICANDO EL DIÁLOGO RELIGIÓN-CIENCIA EN LA FORMACIÓN “INTEGRAL” DEL ESTUDIANTE EN UNA UNIVERSIDAD DE ESTUDIOS LIBERALES

RESUMEN

El curriculum de Estudios Liberales en las Universidades Católicas de Estados Unidos presenta una metodología dividida entre filosofía, teología y ciencia. El curriculum de teología no integra la experiencia espiritual, ni incluye la experiencia cultural religiosa del estudiante. Los estudiantes por lo general seleccionan entre los tres enfoques epistemológicos además de un numeroso conjunto de problemas usando dos tipos de criterios: 1. la naturaleza del curriculum, o 2. la opinión personal. El aislamiento curricular repercute directamente en los estudiantes y fortifica una mentalidad epistemológica aislada. Nuestro trabajo se enfoca en examinar: 1. el núcleo académico aislado, 2. el desarrollo de una jerarquía pseudo-epistemológica basada en una identidad segmentada y de opinión. Las soluciones que proponemos para dicho problema incluyen: 1. formación de comunidades académicas, 2. tutoría entre profesor-estudiante y entre estudiante-estudiante.

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In December 2013 Pope Benedict XVI constituted “Fondazione Scienza e Fede – STOQ”, a continuation of a successful decade long initiative that promoted the science-faith dialog through a collaboration between the Pontifical universities and scientific institutions around the world. Known as STOQ, (Science, Theology and the Ontological Quest) the initiative has been reconstituted as the STOQ Foundation Scientific Committee. Among the many positive assessments of the original initiative were two observations regarding the future role of the Roman Church in the Faith-Science dialog. One, the state of the dialog is not well-known or understood by seminarians or pastors and hence parishioners; two, the nature of the discussion must be brought out at non-graduate (MA, PhD) levels in Catholic universities (undergraduate). Herein, we relate our perspective on future efforts as both student and professor in a Liberal Arts setting.

Liberal Arts curricula in US Catholic Universities have played a part in an un-integrated approach to philosophy, theology and science that has plagued public education at an extreme. Theology curricula do not integrate a spiritual experience or include a student’s cultural experience of religion. Students, usually by default, often unknowingly select from three epistemological approaches (science, philosophy, theology) to numerous complex problems for two reasons: 1. the example and nature of the curricular silo or, 2. by applying particular epistemologies irregularly, inappropriately, or in light of pre-conceived conclusions (ie. this approach suits my opinion). The silo problem continues through a multiple year curriculum where areas of commonality between the three are minimized or not discussed. Because the silo problem is usually generated at the faculty level, it has direct repercussions amongst students and reinforces a silo mindset. A particularly hostile atmosphere can also be generated, and fostered, by implicit assumptions of an academic hierarchy. For example, an implicit assumption that the only knowledge that qualifies as knowledge “per se” can be produced by mechanistic reduction among scientists. Likewise, theology is occasionally referred to as “the queen of the sciences”. We have experienced two major structural problems:

1. Academic core silos. Liberal Arts schools require courses from the disciplines as part of a “checklist curriculum”, rather than provide students with the tools or occasion for both comprehension and integration.

2. Reinforcement of pseudo-epistemological hierarchies based on silo identity and opinion.

WE BELIEVE THAT TWO APPROACHES WILL GREATLY HELP ALLEVIATE BOTH PROBLEMS: A) FORMATION OF ACADEMIC COMMUNITIES, AND B) FACULTY-STUDENT AND STUDENT-STUDENT MENTORING.

The Identity and Nature of the Silo Problem

A shared approach of Liberal Arts curricula in US Catholic Universities is meant to include Science, Philosophy and Theology as compulsory subjects, regardless of a student's concentration in a single area of study. This seems a Liberal Arts education because the student is both specializing, and "learning" about different epistemologies in other fields. However, this simple model falls short: exposure to mere content is not necessarily learning. Dialogue between these three areas may truly provide the integration and comprehension that makes a Liberal Arts experience unique, and desirable.

We make a clear distinction. The call to dialog is not a call to incorporate knowledge from one area into other areas in a blur of identity loss. Blending would certainly distort the actual knowledge of each area, and ultimately the essence of each. On the contrary, the approach is to actively seek where these areas touch common ground. This said, a more macroscopic perspective should be sought in order to identify common questions.

Interdisciplinary dialog is not a new idea, and has been an ongoing topic of discussion. To better illustrate how epistemo-

logical experts may make mistakes when re-enforcing an inflexible intellectual perspective, an analogy can be made with magnification lenses. For this example, let us use an electron microscope, binoculars, and the Hubble telescope as analogs representing the different epistemologies; it is irrelevant which represents which. Three separate disciplines may look at three distinct realities that ultimately are interconnected. Nevertheless, the analogy in this example would be the denial of each person to see from the magnifying lens of the other person and each person denying the connection between the different images. Each person may stand for his/her specific perspective simply because the image observed in their specific lens draws them to interpret that image as if it were the only reality. The argument from each perspective or lens is not false per se, but that taken separately, each presents an incomplete reality/picture.

Attempts at dialogue to many may seem disparate, especially while attempting to detect relations between theology and science. Nevertheless, a bridge can be made by keeping a sense of relationality in mind. For instance, through philosophical/metaphysical thinking, a meta common concept may be generated by the

interactions of each epistemology. Frequently science is said to answer the “how” questions while theology is said to answer “why”. A plethora of creative solutions may, however, arise when students realize that science may also have something to say about “why”, as in the case of evolutionary biology. Different perspectives are not equivalent to changing epistemological approaches. As science students, we are intrigued in how theology students might also propose “how” explanations. For us, it is especially important that undergraduate students be encouraged to experiment, or test, different epistemologies when considering complex problems. Overly simplified solutions are rarely adequate or real. Indeed, very often “real” problems and complex relations are made to fit epistemological models rather than explored with a diversity of knowledge seeking tools.

In science there tends to be ample opportunity for creativity in terms of hypothesis formulation; unrealistic or poorly constructed tests quickly fall apart. We prefer to think of this as creative disproof. Theology and philosophy may discourage a similar creativity by teaching a limited Cyclopean epistemological approach. Individual creativity is not the same as unguided thinking. The professoriate can, by proper use of teams and student mentors appropriately guide students by teaching areas of content, and at the same time encourage the student to intelligibly interpret it through other means.

We also assert that an important aspect of dialog and integration is the foment and

conscious practice of humility. By recognizing that there exists a dialogue and that no single field holds the absolute truth by itself, students and faculty would be encouraged to participate. Indeed we are reminded of the words of the late St. John Paul II:

“... Although they insisted upon the organic link between theology and philosophy, Saint Albert the Great and Saint Thomas were the first to recognize the autonomy which philosophy and the sciences needed if they were to perform well in their respective fields of research. From the late Medieval period onwards, however, the legitimate distinction between the two forms of learning became more and more a fateful separation.”

He continues...

“ As a result of the exaggerated rationalism of certain thinkers, positions grew more radical and there emerged eventually a philosophy which was separate from and absolutely independent of the contents of faith. Another of the many consequences of this separation was an ever deeper mistrust with regard to reason itself. In a spirit both skeptical and agnostic, some began to voice a general mistrust, which led some to focus more on faith and others to deny its rationality altogether.” (Fides et ratio) (italics ours).

Autonomy is only important as a first step. While training students to develop a Libe-

ral Arts way of thinking, faculty can encourage the generation of new knowledge, potentially occluded by not knowing how to incorporate, or use it wisely. Here is where a Liberal Arts education is one step ahead. For example, while imparting new discoveries and advances in science, professors can also discuss the prudence and ethics behind them, as has recently been shown with the gene editing tool CRISPR.

In addition to dialogue, there is an even more transcendental result when it comes to epistemological integration. Each epistemology by itself can only explain a certain part of our intellectual (rational) reality. As individuals we do not experience God separately from the universe nor from our virtues and ethics. Instead, all aspects of the human person are simultaneously experienced as a unity that implies a sense of relationality. The duality so criticized by the Magisterium of the Church is alive and well in academia (as well as in the Magisterium itself). Treating the mystery of the universe as a relational experience rather than a machine-like collection of parts (science), arguments and conditions that lead to pre-conceived conclusions (philosophy) and/or questionable proofs based on selective interpretations of tradition (theology) is but a desirable step toward recognition of the non-duality the universe and the awe inspiring mystery of creation. Both seeing the world solely through reason or solely through faith, are dehumanizing and reductionist approaches, which do not provide a true experience of *being-ness*

One of the main consequences from the silo curricula is the development of pseudo-epistemological hierarchies based on silo identity and opinion. A hierarchy notion is created amongst the three different areas, where not only little space is left for dialogue, but dialogue itself seems useless. All of the three areas have well explained criteria for this notion, which in themselves are true, but not sufficient to fully explain the mysterious order of the universe. The recovery of humility is essential for academics and the establishment of dialogue. Intellectual growth may sometimes deviate and insulate persons from the humility necessary to maintain or recover a sense of awe in the world. Science and theology tend to pull us aside from this humility by pulling persons to one extreme or the other. Ironically, this deviation from humility may be seen as well in Philosophy even as this epistemology seeks to define the *meaning* of humility.

In science exists the temptation to fall short by explaining our mysterious universe solely through a mechano-reductionist notion. As we learn more of the reality of the atomic world through physics and chemistry, we are tempted to believe we may now explain the entirety of the universe. While we may explain several aspects that even before we would not imagine of explaining, this perception of the universe falls short in describing everyday attributes, such as love or ethics.

For instance, a well-known and on-going example of epistemological radicalism is seen in the treatment of Darwin's theory

of evolution by natural selection. His theory shifted the common belief in a special creation, held in a mid-Victorian world and by some today, to a history of descent with modification. Various philosophers and theologians have disregarded common sense in the last one hundred years, and mountains of independent evidence, to attack the theory in a blind-faith misunderstanding of religion and the non-empirical place and function of their epistemologies. Likewise, some scientists have wrongly used scientific evidence to assert or erect some contorted faith-based view of a universe that is void of meaning. In said fray, any semblance of faith and reason is lost.

Catholic universities seem to be especially vulnerable to a “silos within silos” problem. In an interview with *America Magazine*, Pope Francis was pointed in his criticism of what many have taken to be scholastic Thomism (9/30 2013):

“The church has experienced times of brilliance, like that of Thomas Aquinas. But the church has lived also times of decline in its ability to think. For example, we must not confuse the genius of Thomas Aquinas with the age of decadent Thomist commentaries. Unfortunately, I studied philosophy from textbooks that came from decadent or largely bankrupt Thomism. In

thinking of the human being, therefore, the church should strive for genius and not for decadence.”

Moreover, a few Catholic liberal arts universities seem to have the need to defend such rigid Thomism as the only way of understanding the truth, and regard other philosophical interpretations as false and misguided. In an online blog commentary called “The Smithy” Dr. Michael Sullivan writes:

“I think the biggest thing that stands out about many of them is that [in them] philosophy (and theology) begin to look like purely deductive systems like logic and mathematics: set out (and perhaps justify) your principles, and then pile up inferences until you have a big scientific body of knowledge. It begins to look almost like something a computer could do, as though no real thinking, only cogitating, is going into the construction of the system. But good philosophy shouldn’t be like that: it should be a direct encounter of the intellect with reality. This includes making arguments, of course. Thinking without arguments isn’t much thinking; but arguments without thinking isn’t really philosophy either.” (<http://lyfaber.blogspot.com/2013/09/pope-francis-on-thomism.html?m=1>)

RESOLUTIONS

1. Formation of academic communities. While we recognize the importance of a

formal identity with one’s chosen discipline especially, a first step toward developing

academic communities involves restructuring the curriculum in order to elevate the practice of dialogue and integration. Guided curricula are more important than rock solid silo curricula. Once again, this is not a call for a completely free curriculum, but an invitation to more formally integrate the different areas of study that are commonly excluded. This is one step beyond the current Liberal Arts curricula, which is often a checklist curriculum. The formation and utilization of academic communities will demand more from students and emphasize a cross discipline participation in their academic formation.

Typically, only students in Honors programs proceed through a four-year degree as a cohort with members in different majors. We propose forming small assemblages of students that are approximately balanced between science, philosophy, and theology majors, that function as a cohort in the same way and share regular seminar style meetings each semester that focus on specific aspects of the Science-Religion dialog.

Cohorts need not be geographically limited to a local school or university either. DRF and his colleagues have proposed the formation of an international undergraduate network in science and religion known as AIRES (Aquinas Initiative for Religion, Education, and Science). Here, part of that proposal involves the institution of an introductory Faith and Science course at several Catholic Colleges in three or more countries. Students are then divided into groups that work collabora-

tively on problems by blog and internet based resources. Each team is composed of members from all universities and must be composed of science, theology and philosophy majors. A clear advantage is generated from both a cross-disciplinary view and a trans-cultural experience.

For appropriate dialogue, a certain degree of knowledge is necessary before proper integration of the different areas of study. Dialogue should not be sought as mere identification of differences and similarities, but as a creative, active and constant mutualistic integration of accumulated knowledge and the relationality between the different areas. For instance, "mini-thesis projects of dialogue" may be implemented in the curricula as an end of year assignment. In these types of assignments, student pairs (science with theology or philosophy) would have to elaborate a formal paper regarding the different classes from the entire academic year and establish from their own perspective of how the different areas of study complement each other.

Graduation from a Liberal Arts school should seek the formation of a "whole" student/person. Hence, a formal evaluation and "final thesis of dialogue", aside from the "yearly mini-thesis projects of dialogue", could allow for universities to properly evaluate for formation of truly whole students and most importantly, persons. This higher level of thesis evaluation prior to graduation should incorporate all areas of study covered. Although this writing is specifically directed at science, theo-

logy and philosophy undergraduates, the tremendous contribution that the other humanities and fine arts can make should not be ignored; nor, should those students be excluded. The incorporation and exposure to arts inside of Liberal Arts curricula and education may aid in forming an idea of relationality through experience. Arts are not only for what one sees or hears, but are often intended to be experienced as a relational expression of reality.

Dialogue implementation is necessary throughout the Liberal Arts academy. Moreover, its outreach to the younger educational community is equally as important. Exposing students at a younger age to what it means to have a Liberal Arts education is an incentive to make them understand what this type of education truly seeks to develop. By incorporating a guided dialogue, younger students may begin de-mystifying the idea that theology, philosophy and science do not communicate.

It is common for us students to participate in pre-college outreach programs where we go and discuss our fields of study and sometimes give a lecture on a topic in which we are interested. In addition to this, another step may be taken by allowing younger students to get a closer look at a Liberal Arts education by inviting students from different academic levels, such as High School and Elementary level, in order to begin fostering the idea that dialogue is possible between these areas. This approach does not regard content per se, but instead serves as an illustration of what may be achieved with the epistemological

dialogue, to which younger students may eventually be exposed. Sadly, many times even the same students who attend Liberal Arts universities, graduate without fully understanding the purpose of the Liberal Arts experience. Therefore, exposure of younger generations to dialogue and integration would prepare them for a Liberal Arts formation.

Formation of a “whole” student goes beyond a GPA or university diploma. Certainly, both are important aspects for the proper formation of the graduate. However, the real purpose of an education is the formation of whole persons. Because the beneficiary of formation is the student, constant and continuous self-evaluation is an important tool as well.

Self-evaluation tools such as continuous written reflection, surveys, questionnaires, and even discussions amongst faculty and students, could help students tackle what they believe necessary for continuing on their formation. The tools provided by the university may facilitate intellectual and personal formation, but the real integration of knowledge from these tools rests with the student, and not the university. In another sense, self-evaluation allows us to realize that the education and formation is about our own formation, and that it should be taken and thought of in a serious manner.

Self-evaluation is often fomented in many universities, either directly or indirectly. This self-evaluation should be facilitated in Liberal Arts colleges by the integration

of the different areas of studies which ultimately deal with the formation of a whole and integral person. For instance, with science we may better understand the physical world that surrounds us and properly understand how the reality of this world works without just the assumption of it operating under some supernatural reason. In the case of philosophy, we also may better comprehend the means of becoming a virtuous person. And last but not least, with theology, we better understand God, our relationship with God and where we stand to deepen this relationship.

Therefore, self-evaluation should ultimately aim in the direction of relationality, understanding that through experience, all aspects that the different epistemologies teach and study, are constantly acting on one as a person and one as a person is acting in concert with them. The incorporation and exposure to arts inside the Liberal Arts academy is a good example of relationality through experience. Moreover, experience through religion and theology would assist spiritual growth and formation of a whole student/person. Religion is commonly based on tradition, scripture, and experience. A directed emphasis of theology towards the meaning of such experience would help develop a perspective focused on a more holistic perception of faith, and reason.

Integration is necessary for the curricular formalization of the different epistemologies, and also for the different types of teaching approaches around the world. A Liberal Arts education in the USA may be

very different from one in Latin America. Both would share similar aspects, mostly with regard to content, but would also have a plethora of approaches of how to seek dialogue between the different areas. Therefore, utilizing Latin American University curricula that foster dialogue between theology, philosophy, and science is primordial in the formation of academic communities.

In education, learning from other systems is an important aspect in order for there to be a constant lookout for what works best for students. An education goes beyond content material, it transcends to how it is applied by the students and the people in society. Analyzing other universities' curricula, such as Latin America, may help integrate key aspects that North American Liberal Arts education may be lacking. Beyond studying the Latin American curricula per se, studying how it is applied by their people in the society itself would offer the possibility to apply different instruments for the dialogue between theology, philosophy, and science.

In a society of ever increasing immigration, such as seen in the United States, understanding Latin American culture and educational systems would help to bring benefits to American Liberal Arts universities and to an integrated society as a whole. The United States is historically and currently an immigrant nation. Utilizing Latin American curricula would allow for academic comparisons that may provide new ways to shape how we see this dialogue at the university and academic level.

2. The Value of Mentorship

As we mentioned earlier in our discussion, proper guidance is essential for the formation of the “whole” student. Mentoring in education has been one of the best kept traditions since the beginning of academia. Close academic and educational contact between mentor and mentee goes one step beyond the classroom for both, allowing for a deeper and more human education. Faculty-student mentoring allows students to be involved more personally in their careers and also to receive additional knowledge that is grounded in the experience of the mentor rather than in a book. Mentorship at Liberal Arts schools should go one step further and should not only be implemented between faculty and student but also at the student level solely. Student-student mentorship would allow for a sense of responsibility and leadership on the student, where it is in her/his responsibility to adequately and appropriately continue the transmission of education. As St. Thomas would comment on teaching, it involves both contemplation and action, and this would allow for students to go beyond contemplation and seek the

action and responsibility of transmitting knowledge.

Moreover, mentorship provides a sense of privilege and of responsibility for the student different from the accountability inside the classroom. Professionalism would be indispensable to individuals, as both mentor and mentee. The inculcation of a tradition of knowledge transmission and fostering a journey of wisdom would be encouraged from a young age.

In our Biology department we have had much success with third and fourth year students mentoring students in introductory courses. The AIRES program, mentioned previously, also provides intensive workshop opportunities for teachers to mentor teachers. Here, secondary school religion teachers are paired with secondary school science teachers as both participate in a week long reading of theology/philosophy texts in the mornings, followed by team experiences in appropriate laboratories in physics, chemistry and biology in the afternoons; evenings are reserved for discussions and integration.

CONCLUSION

Fostering dialogue between Science, Philosophy, and Theology is an eminent task for all Liberal Arts universities’ curricula. The modern silo curriculum approach for this type of education has impeded the integration of these three areas of study. Besides avoiding integration, it has also promoted the notion that these areas should

not communicate between themselves and that separation between them is essential for their proper teaching. However, this simply becomes detrimental to the academy, students and teachers. At best it invites confusion and unnecessary intellectual disagreement.

As Pope St. John Paul II comments on the search for truth,

“The search for truth, of course, is not always so transparent nor does it always produce such results. The natural limitation of reason and the inconstancy of the heart often obscure and distort a person’s search. ... Yet, for all that they may evade it, the truth still influences life. Life in fact can never be grounded upon doubt, uncertainty or deceit; such an existence would be threatened constantly by fear and anxiety. One may define the human being, therefore, as the one who seeks the truth” (Fides et Ratio).

A Liberal Arts education aims to create students and persons who seek the truth.

The common approach for so doing argued in this paper, emphasizes a relational and integrated perspective. A university education is valued for its holistic formation of both student and professor. The basic elements necessary to do so include humility, awe, open minded-ness, and a willingness to see the universe through more than one lens. It would remind us that science, philosophy, and theology, by themselves address only part of the reality. Through their integration the mystery of the universe may be better explained and most importantly, more fully experienced.

Truth is eternal. Our knowledge of it is changeable. It is disastrous when you confuse the two. Madeleine L’Engle

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