

Modeling the Cosmos: Transformative Pedagogy in Science and Religion

Abstract

This article reflects on the classroom pedagogy promoted by Christopher Southgate and its implications for the science-theology conversation. It highlights several important aspects of Southgate's pedagogy. The use of models of God, humanity and cosmos emphasize relationality while encouraging the synthesizing of ideas. The promotion of holism in theological reflection is vital for nurturing students to become theologians themselves through the active re-evaluation of key doctrines and ideas. An emphasis on ethical considerations reinforces synthesis between theology, science and ethics, and is vital for perspective transformation. These aspects of Southgate's teaching should be recognized as vital for promoting intellectual independence, partnership and theological transformation, all of which are essential to good science and theology pedagogy.

Keywords: Pedagogy, teaching, science and religion, Christopher J. Southgate, perspective transformation.

Thinking about Chris' lectures brings back clear memories of drawing and coloring in. Along with a lecture room abounding from week to week with curious, often dog-eared, objets d'art, all of them the fruit of Chris' commissioning. "Outline a model of the relationships between God, humanity and the cosmos." This was a clarion call for some hard metaphysical graft from his students. Aimless doodling was out. Instead it was solar systems, fish, trees, houses, whole universes, theories of life, the universe and everything, all incarnated on paper, fervently poured over and then stuffed into some sort of foolscap-sized receptacle after our fifty minutes was up. This was not just an enjoyable distraction, however. Our aesthetic creations were our theologies. Moreover, they transformed us into theologians.

Theology through modeling

Considering the relationship between theology and science through the creation of models is a particularly valuable aspect of Chris' pedagogy. It forms the overarching theme of the helpful textbook *God, Humanity and the Cosmos*, of which he was the chief editor and which was the focus of his undergraduate modules I remember so well. The summative aim of his second year undergraduate module at the University of Exeter was the outlining of a personal model of the relationship between God, humanity and the cosmos: one that engaged with the findings of contemporary science and brought these into conversation with contemporary theologies, including those studied within the module but also beyond it. Synthesis was key here. This was the only class I remember of my undergraduate years where we were able to integrate fully our findings from all the other modules we studied and incorporate them into one coherent world-view.

As someone who is now herself teaching science and religion at tertiary level, I appreciate how a modular system often discourages this. Students don't make links readily between separate modules and it takes a great deal of encouragement for them to apply research in one module to another. This is perhaps inevitable given the wider structure of the academy where biblical studies, systematic theology and the philosophy of religion, to name but some of the 'disciplines' within what is usually called 'Theology and Religious Studies', have tended to become siloed. This isolation can only hinder the quest to better understand ourselves together with the wider world: an essential aspect of what theology is. To engage properly in the science-theology conversation is to do interdisciplinary work, but this interdisciplinarity is multi-layered. Chris' pedagogy shows a profound appreciation for the fact that biblical hermeneutics, the history of science and theology, critical reflections on systems of theology, and the contributions of philosophers, must all coalesce for 'religion' to converse with 'science' in a way that yields genuine insight as opposed to sheer apologetics. In the way Chris teaches, this goal becomes a concrete reality.

At the beginning of the aforementioned undergraduate module, Chris first introduced us to historical narratives, including some different interpretations of the Galileo story. Not only did this foster an appreciation for considering the different ways science and religion might relate to one another (they are certainly not necessarily in conflict), it nurtured an awareness of the contextual nature of scientific and religious knowledge, an understanding of how the creation of scientific and religious 'facts' is a social enterprise, and of how social and political norms are hidden beneath so-called objective value-neutral scientific knowledge.

These are all important features of what Joyce Nyhof-Young identifies as a feminist pedagogy in the religion and science curriculum (Nyhof-Young 2000, p. 445). When, as Chris' students, we went on to examine contemporary scientific narratives—including, for example, those of evolution and singularity—these insights challenged us to think about where the frontiers of 'science and religion' lie, they opened up the possibility of other ways of knowing, including the poetic and artistic, and they made room for the creation of new narratives informed by personal experience. Two important things are embedded in this teaching approach: a challenge to the assumption, inherited from modernity, that so-called different disciplines in the arts, humanities and sciences can be easily prized apart, and a means of countering post-modern proclamations that knowledge is fragmented and perspectival. As Wentzel van Huyssteen points out, the focus on models and metaphors compels us to recognize the complex nature of scientific practice and theological discourse, while bringing both together as different, yet interrelated, maps of the same reality (van Huyssteen 2011, p. xxiii).

Holistic pedagogy

In designing an undergraduate module in science and theology, it would make for an easier life to stop at the point of getting students to consider the implications of the insights of contemporary scientific developments for various particular theological doctrines or individual theologians. In stretching his students beyond this to include the construction of a personal, coherent model, Chris promotes what A. N. Whitehead terms holism, or generalization. This is the final stage of Whitehead's process for effective education (Whitehead 1929, p. 28), the stage at which, having been inspired by a general love of the subject, and having worked hard to achieve discipline in critical engagement by attending to the details of the subject and getting the arguments sharp, students "re-create the world and themselves" (Grassie 1997, p. 416). Through this process of re-creation, Chris makes those he teaches 'do theology' in the most profound sense. Whitehead's way of articulating the aim of education is no less valid today than it was all those years ago. Chris not only introduces learners to countless different models—Gaia, the web of creation, God as composer and novelist—but they are encouraged to imagine their own. Theology is therefore 'done' by his students, not just learned about. As Sallie McFague has shown so powerfully through her work, alternative models have the power to disorientate and reorientate, and furthermore they can 'remythologize' (McFague 1987, p. 182). They demand radical re-evaluation of theological concepts like sin, salvation, and *imago dei*, and they open up space for different imaginaries.

The ethical dimension

This process of re-creation or remythologizing is inherently ethical and brings me on to what I believe to be another invaluable aspect of Chris' pedagogy: it is particularly attentive to the dimension of the ethical. Any created model of God, humanity and the cosmos that focuses on relationality has to confront its implications for action. It is too often the case that, for example, a particular conception of *imago dei* is not considered in terms of the relationships it will engender with non-human animals or the earth's natural resources. Ecotheology has always been at the heart of Chris' teaching and from him I learned that it could never be thought of as something of an 'add on' to a syllabus—an optional subject for a particular week—but that it should inform every aspect of theological reflection. By teaching 'science and religion' modules in this way, Chris amply fulfills the obligation William Grassie demands of those involved in the pedagogy of science and religion. Teachers in this field, Grassie argues, assume responsibility as 'co-creators', by which he means they must foster awareness in students that we must all change ourselves in response to the scientific and theological insights gained through academic endeavor (Grassie 1997, p. 418). By

bringing models of relationality to the fore, it is impossible for his students to avoid the profound ethical implications of the science-theology conversation. Attending to models of sin as the destruction of ecosystems or structural injustice, for example, requires the kind of disorientation and reorientation McFague talks about and makes an appreciation for the ethical implications of this theological reflection unavoidable.

Perspective transformation

One of the principle goals of adult education is, as Mark Nichols and Rosemary Dewerse have pointed out, perspective transformation: the changing of how someone understands the world and interacts with it (Nichols and Dewerse 2010, p. 45). Perspective transformation involves not just understanding a subject but recognition of the inevitable ethical consequences of our world-views and the importance of this for critiquing our own life-philosophies. It is clear that this is particularly true of the teaching of science and religion because students make informed decisions on the most important life questions of ultimate significance, including the meaning of life and its purpose (Grassie 1997, p. 417). Through the study of this subject, students engage with such a broad range of different narratives about the world, including its origins, *telos*, and meaning. It is clear to me that Chris, throughout his teaching career and also through his wider scholarly activities, has capitalized on the potential of this subject to reframe and reorientate, and thus enact perspective transformation. Through his focus on models of relationality and their ethical import his teaching could, I think, be considered a prime example of promoting what has been called 'deep' learning, which occurs when students are encouraged to turn other people's ideas into a personalized structure of knowledge (Ellington 2000, p. 312). The construction of personal models enacts perspective transformation at the deepest level because students become actively involved in their learning through the creative process.

As a final word, I would like to share my appreciation for the classroom culture Chris promotes. His teaching sessions are very much an exercise in partnership. I remember him continually encouraging his students to generate insights and lead discussion, and he always nurtured innovative ideas. This pedagogical approach has become much more common now but I remember it as a feature of his lectures at a time when the 'sage-on-the-stage' approach was only just starting to be challenged. The sharing and evaluation of those pieces of paper with our different constructed models of the relationships between God, humanity and the cosmos meant classroom dialogue provided a context for building our personal theories, granting us a significant amount of intellectual independence (Nyhof-Young 2000, p. 446). I recall substantial amounts of time in small and large group discussions together with seminar papers every week, the interactivity of which created a strong community of learning. My co-

learners evidently shared my appreciation for this style of teaching: the seminar for Chris' final year module was scheduled for late on a Friday afternoon (until gone five, if I remember rightly) and it was always well attended. There can be no student complement more sincere than that.

I am sincerely grateful to have been given the opportunity to be part of this volume by reflecting on Chris' pedagogy. In summary, I can testify that through his promotion of creativity and theological transformation, Chris' teaching makes a lasting impression on his students. Furthermore, his teaching in this field is itself a model for how the science-theology conversation might more widely nurture new insights and profound theological re-imaginings.

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