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# The economic and epistemic division of labour: on Philip Kitcher's *The Main Enterprise of the World*

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## ABSTRACT

In *The Main Enterprise of the World*, Philip Kitcher identifies an over-specialized and over-loaded curriculum as a particular affliction of education in our time. Kitcher criticizes a narrow view of education on which it is conceived as being no more than job training and proposes a more humane set of educational goals to be pursued in school. For Kitcher, the problem of the narrowness of the economic aims of education and the problem of the over-loaded curriculum are connected and, in Chapter 2 of the book, he presents a thoroughgoing critique of educational specialization as a distinguishing feature of education today. He holds that the economic value of education cannot capture education's full value and that true education should build children and young people's capacities for meaningful life and work. In this paper, I discuss Kitcher's critique of educational specialization. I note that Kitcher draws most of his inspiration from considerations about what makes a human life go well and therefore situates his thinking about education in the realm of ethics, rather than in his home discipline of the philosophy of science. Defending educational specialization, I turn to some of Kitcher's earlier work in the philosophy of science to show that the epistemic division of labour calls for a considerable degree of specialization in educational curricula on epistemic, rather than on economic, grounds.

**KEYWORDS:** cognitive division of labour, economic aims of education, educational specialization, epistemic division of labour, flourishing

In *The Main Enterprise of the World*, Philip Kitcher proposes a philosophical framework for thinking about the aim and conduct of education and about the

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educational reforms necessary to enable the education system to fulfil those purposes. Kitcher argues for a close connection between the subject of philosophy and educational thought. He quotes Dewey who held that:

If we are willing to conceive education as the process of forming fundamental dispositions, intellectual and emotional, toward nature and fellow men, philosophy may even be defined as the general theory of education. (Kitcher 2021: ix)

In writing thus, Dewey held that philosophy can be of service to education; more concretely, that we can, by doing philosophy, shed light on questions about what education should aim at and how it should be conducted. Kitcher's call for us to see education as being of strong philosophical significance is rare in the analytic tradition, which usually conceives of philosophy of education as being an 'applied' field of philosophy in which philosophers take existing philosophical theories to help them solve predetermined questions. As Kitcher shows us, the relationship can also go the other way: thinking about education can help us to do better philosophy.

Kitcher starts with an observation about how old and ubiquitous the social practice of 'education' is:

... the practice of education is extremely old. It antedates the invention of writing, antedates the domestication of animals, even antedates the origin of our own species. (p. 1)

Indeed, education is found wherever

Small hominid bands, often struggling to meet the challenges of harsh environments, devised ways of ensuring the survival of useful techniques. (p. 1)

In this period of our history, Kitcher reminds us that

A band's continued existence ... often depended on its ability to transmit its practical expertise and its social lore to the next generation. (p. 1)

However, the way that Kitcher sees it, the ancientness of education and the repetitive nature of transmitting knowledge from one generation to the next is also a weakness or a problem. Because our educational practices are inherited from a long history, and because they are often repeated generation after generation without change, he fears that our current educational system has become stultified into a 'grotesque contraption' (p. 2). The most 'grotesque' result, for Kitcher, has been what he calls the curricular 'overload' that characterizes much schooling today. Ask any person to propose a curriculum that teaches everything that children should learn and the list of curricular topics proposed grows like topsy. Indeed, Kitcher tells the story of how John Stuart Mill once gave an oration of three hours attempting merely to outline a suitable liberal arts curriculum for the University of St Andrews in 1867.

Rather than give in to overload, Kitcher proposes—in Chapter 1 of the book—that we should specify systematically what are the most important capacities to develop in children from the point of view of their economic, political, and developmental needs in life. He holds that, rather than yield to overloaded demands, the

education system should focus on promoting ‘self-maintenance’ (economic), ‘citizenship’ (political), and ‘self-fulfilment’ (eudaimonic) aims. A large part of Kitcher’s agenda in the book is to argue that we should not entrust the shape of our educational system to history or to evolutionary processes. Instead, we should conduct better educational philosophizing to *rethink* how we do education.

A further educational problem for Kitcher is a misconception of the aim of education. Curricular overload is related to, or made worse by, a view according to which education is mainly an economic activity—a form of job training. As representative of that view, Kitcher chooses Adam Smith and calls the idea ‘Smith’s Principle’. One thing that is wrong with Smith’s Principle (and here Kitcher agrees with Marx and Dewey) is that it reduces people’s lives to the ‘stupefying monotony’ of factory work (pp. 57–8). The other problem with Smith’s view of the value of education is that it makes education excessively narrow. Kitcher sets out the narrowness that attends Smith’s view well.

Let’s begin by considering how Smith might have been led to think that education *only* needs to provide the skills required for the workplace, that it should not attempt to do more. On his account, economic well-being requires continual intensification of the division of labor. As the division becomes more fine-grained, workers must be trained to highly specialized tasks. Any educational time spent on serving other ends, delivering the kinds of rich education educational theorists typically recommend, is time wasted: it would be more efficient, either to inculcate specialized skills more thoroughly or to end training and send the young directly into the workplace. (p. 60)

Kitcher concedes the economic logic behind Smith’s Principle: that the economic division of labour does increase economic efficiency and the education system can further enhance that efficiency by encouraging specialization. However, Kitcher stresses that economic logic should not determine all our educational choices. Kitcher points out that it is well known that mechanical and computing power have been replacing human labour for some time; moreover, artificial intelligence may result in increasingly rapid replacement of human workers by intelligent machines (pp. 67–73). Starting from this observation, Kitcher offers the following counter to Smith’s Principle: imagine that, in future, all, or even most, human work came to be carried out by intelligent machines. In such a future, there would be no need to encourage labour specialization via educational specialization and Smith’s Principle would cease to dominate education. Read in its most obvious sense, Kitcher’s claim is simply an empirical observation: the rise of artificial intelligence may, in future, leave humans free to pursue much richer educational alternatives than Smith ever imagined. However, next to this claim, Kitcher also suggests a more subtle philosophical point: if all work were done by machines in future, this would not mean that *education would stop...* even if machines did all the work, we would still educate our children. This implies that the point of education (even today, before the arrival of a post-work techno-utopia) cannot be solely economic. The true point of education is that it helps children to develop their capacities. Moreover, the education system enables a particular group of adults—teachers—to do the meaningful work involved with the upbuilding of children. Kitcher in effect holds that education is its own reward or, as he puts it in the title of the book,

that it is and should be the ‘main enterprise’ of humanity. He sketches what he calls a ‘Deweyan’ and ‘humanist’ picture of the point of education. To live a fulfilling life, he holds, ‘... requires contributing to other human lives...’ (p. 83) and it is no surprise that as a university professor, Kitcher sees the main contribution that we can make to others’ lives in terms of how we can educate them.

In my remarks on Kitcher’s book, I focus on his discussion of Smith’s Principle, of the broad aims of education and, especially, of *educational specialization* in Chapter 2.

In Chapter 2, Kitcher makes an argument that the value of education is not just economic but lies in its contribution to human flourishing.<sup>1</sup> It is notable (and a little surprising) that he draws most of his inspiration for the proposal from considerations about what makes a human life go well and therefore subtly situates his thinking about education in the realm of ethics, rather than in his home discipline of the philosophy of science.<sup>2</sup> To be sure, by far the majority of philosophy of education today is more aligned to ethics and political philosophy. Indeed, very few philosophers of education draw inspiration or concepts from the philosophy of science in analysing the nature of education. However, considering the matter from the perspective of the philosophy of science provides us with a reason to take a second look at the value of educational specialization. Kitcher presents Smith’s Principle and the *economic* division of labour as the main driver behind educational specialization, but there is another form of the division of labour—the scientific division of labour—that is more fundamental and is ‘baked in’ to our educational system. Considering the value of education in terms of what it contributes to the furtherance of science—and technology—leads to different conclusions regarding the value of specialization and the source of curriculum.

Let us return to Kitcher’s picture of the birth of education in the needs of early hominim bands to pass on useful skills to the young:

Small hominim bands, often struggling to meet the challenges of harsh environments, devised ways of ensuring the survival of useful techniques... A band’s continued existence ... often depended on its ability to transmit its practical expertise and its social lore to the next generation. (p. 1)

This was not only the case in prehistory but is still the case today. Our society depends on technological know-how for its maintenance. It takes know-how to feed, clothe, house, and transport us. And none of that technological know-how—how to farm, how to spin, weave and sow, how to build, how to fly or drive—is inborn. All of those things need to be taught. If those with the necessary technological knowledge regarding how to do all of these things were ever to cease teaching their knowledge to the next generation our whole society and all its technological knowledge would die out in the space of one human lifetime. As the old specialized workers die,

<sup>1</sup> It bears pointing out that, in recent philosophy of education, similar proposals are put forward by Brighouse (2005), Curren (2013), De Ruyter (2004), and others. Moreover, Reiss and White (2013) present a thorough-going critique of a knowledge-based curriculum and propose to replace it with a capabilities-based curriculum designed to promote flourishing.

<sup>2</sup> While Kitcher writes about the natural sciences in Chapter 7, the thrust of that chapter is to consider what we should teach children about science (and to advocate for a dual track or two-stream approach to the teaching of science).

with no new workers to replace them, the work would not be carried out any longer; but, more to the point, their knowledge of how to do that work would vanish too.<sup>3</sup> Some might be tempted to say that the knowledge would not disappear because today all knowledge is printed in books or available on the internet. However, this is no help, because one of the most fascinating and useful, but also difficult, skills to learn, is the skill to read. If all teachers stopped teaching *that* skill, the new generation would not be able to reabsorb our society's technological knowledge from books or websites. The point is not subtle. If we do not actively teach young people all of the things that our culture has discovered over thousands of years of human learning, then those things will be forgotten. However, it should be fundamental to educational thinking. Contrary to what advocates of discovery learning hold, no individual child can discover the whole of human knowledge for themselves *de novo*: if we ever begin to see a little further than the previous generation, it is because we stand on the shoulders of giants... and those giants have taken much trouble to teach us how to get up on their shoulders.

According to an old view of the value of education, education is 'the transmission of culture' and a number of theorists—both of a more conservative and of a more progressive stripe—have offered broadly transmissionist accounts of education. Most obviously, the transmissionist view can be found in the work of thinkers like Oakeshott (1962), Adler (1982), or Hirsch (1987). However, the transmissionist view is not necessarily educationally conservative. Even developmental thinkers like Bruner (1977) concede that the development and sustainment of human culture depends on transmission of culture through education. More to the point, Dewey, the most famous champion of discovery learning and Kitcher's inspiration in writing this book, opens *Democracy and Education* (Dewey 1916) with a section called 'Renewal of Life by Transmission'. Recently, Kim Sterelny, in his book *The Evolved Apprentice* (2012), argued that we should understand human evolution itself not only in terms of physiological changes to our bodies (like large brains, walking upright, and opposable thumbs) but in terms of humans' evolving capacity to pass on technological knowledge through teaching and learning.<sup>4</sup>

Kitcher is wary of curricular overload and wary of instrumentalizing education and turning it into a mere economic tool. As a consequence, he is also wary of too much educational specialization and prefers to conceive educational aims broadly in terms of self-maintenance, citizenship, and self-fulfilment. However, Kitcher himself is well aware of the crucial role that specialization plays in science. For instance, in a paper called 'The Division of Cognitive Labor', Kitcher (1990) points out that just as our economy has benefited from a division of economic labour, science has benefited from a division of cognitive labour. In science, specialization is efficient because it allows scientists to explore their own specialist area in

<sup>3</sup> Consider how it is impossible, today, to build a medieval stone cathedral. Our society does not have available either the number or quality of stonemasons needed to construct, say, Wells or Ely from scratch.

<sup>4</sup> Sterelny provides the kind of 'genealogy of education' that Kitcher asks for in Chapter 1 (p. 36) of *The Main Enterprise of the World*.



much greater depth than generalists could: a hundred specialist scientists, each focusing on one problem, can discover far more than a hundred generalists who all work on the gamut of problems (Weisberg and Muldoon 2009; Muldoon 2013).

Smith's view of education is that we should give each child the education that they need to perform the job that they will do as an adult, no more, and I wholly agree with Kitcher that that is a short-sighted approach. For one thing, we do not know what job a child will one day perform and, for another, the whole *point* of education seems to be to broaden children's future options rather than settling them in advance. However, given that science depends on specialization and given that the education system is our scientific training ground, the education system must encourage children to specialize. *Contra* Kitcher, I would argue that it is a mistake to slide together the issues of economic and epistemic specialization: Kitcher should not tar an education focused on academic subjects with the same brush that he wielded against Smith's model of economic labour.

Elsewhere (Kotzee 2018), I have written that the question of specialization—how deep it should be and at what age it should start—is one of the most interesting applied epistemological questions in education. However, I also held that, paradoxically, specialization in adult life depends on a broad general education at school. First, in order to specialize in some cognitive task one day, children need to learn what specialisms are on offer, what the boundaries are between the different specialisms and how the different specialisms interact with one another. It is only if children have a broad understanding of the whole field of human knowledge, and know a little bit about each of the possible specialisms, that they can decide for themselves what area they would like to specialize in. Moreover, children need to know at least enough about the range of specialisms that make up the cognitive division of labour so that they can reliably choose which experts to trust in specialist areas that go beyond their own knowledge. For instance, to know that we should trust the opinions of chemists in matters of chemistry—rather than alchemists—requires at least a minimum of knowledge about the subject chemistry. The justification for the teaching of school subjects is that it gives children a broad overview of and introduction to our cognitive division of labour.

Kitcher situates the essential *value* of education in terms of how it can enable children to find fulfilment (Chapters 1 and 2), in a life lived amongst other people (Chapters 3 and 4). This focus on education's role in promoting human flourishing puts him in the same camp as authors such as Brighouse (2005), Curren (2013), De Ruyter (2004), and White (Reiss and White 2013). To be sure, Kitcher does not ignore the importance of science; indeed, he devotes Chapter 7 to the teaching of science. However, for Kitcher, what we should teach children about science is more a matter of what brings them fulfilment, rather than what advances science itself. In my view, this emphasis leaves a curious gap in the book: it leaves out the contribution that education makes not only to individual flourishing but to the maintenance and advancement of 'science', broadly construed as the sum of human knowledge—theoretical, applied, and political—that enables us to live the spectacularly prosperous and comfortable lives that we do today.

To re-enforce the point, consider that humans became ‘behaviourally modern’ about 10,000 years BCE and that that means that each of us had roughly only 500 generations of behaviourally modern human ancestors. In that time, humanity utterly transformed the way it lives—from a world of small bands of hunter gatherers living in caves to vast societies of knowledge workers living in high rises. Whether one prefers the old or the new world, there can be no doubt that what brought about this transformation was science. Moreover, the clock cannot be turned back: our flourishing today and into the future depends on continuous maintenance of and improvement of science.

True enough, technological innovation has greatly damaged our natural world through the burning of carbon-based fuels, but technological innovation has also led to centuries of economic and population growth, to the point that *Homo sapiens* is now the most populous mammal on earth<sup>5</sup> and contributes a share of all biomass on earth that is far larger than that of wild mammals.<sup>6</sup> It is an intriguing question whether human technological advances could or would have taken place without corresponding population growth; and it is a deeply morally troubling question whether the two forms of growth—in technology and human population—can be said to be a good thing all-things-considered. However one answers these two questions, anyone but the most dyed-in-the-wool romantic would concede that abandoning our technology and returning to a life of hunting and gathering could only be accomplished by shrinking the human population from its current 7 billion to a number in the millions.<sup>7</sup> Of this Kitcher is deeply aware, and, in Chapter 11 of the book, entitled ‘Utopia?’, he calls population growth the ‘most obvious’ challenge to his view of a Deweyan Society (Kitcher 2021: 355); he also sets out, in a clear-headed and unemotional way, how members of any future Deweyan Society will have to abide by a norm not to have too many children (p. 356) if it is ever to get off the treadmill of constant economic growth.

For my purposes, the most important point is this. Given a human population in the billions, feeding, housing, and clothing them all requires the application of technology. That technology will hopefully be cleaner in future than it is now and—in line with Kitcher’s vision in the book—that technology will hopefully also free people to work less hard in future and to focus on more meaningful pursuits. However, if this utopian vision is to come to pass, the technology we have now will at the very least have to be maintained and most probably have to be drastically improved. In these endeavours it is likely that *epistemic* (that is, scientific and epistemological) specialization will be crucial. As Kitcher has himself argued in the philosophy of science, epistemic specialists are more efficient than epistemic all-rounders in securing

<sup>5</sup> Save, perhaps, rats or mice, two species that live cheek-by-jowl with humans. <https://www.britannica.com/list/abundant-animals-the-most-numerous-organisms-in-the-world>, accessed 30 Apr. 2023.

<sup>6</sup> <https://www.weforum.org/agenda/2021/08/total-biomass-weight-species-earth>, accessed 30 Apr. 2023.

<sup>7</sup> At best. For comparison, there are perhaps 20,000 lions left in the world and the population of gibbons and orangutans is in each case 200,000–300,000.



scientific and technological advances. I share Kitcher's vision of a labour system set up to enable people to do broad and meaningful *work*; however, I think that achieving that vision does not automatically also mean an end to educational specialization. Quite the opposite: freeing humans to work less will probably require them to specialize more in scientific and technological terms and, as I held in Kotzee (2018), will require the right mix of subject specialization and integration in the education system.

It is a happy sign for philosophy of education that a philosopher of Kitcher's calibre has highlighted so eloquently the crucial role that education plays not only in the lives of children, but in the whole story of human development and culture. Our subject fundamentally deals with the question of where education fits into the day-to-day activities of humanity and most scholars will agree that being able to re-design an education system best to achieve children's personalized goals of individual fulfilment would indeed be the main achievement of the world, if it ever came to pass. However, it is my contention that until our species can entrust all productive work to artificial workers, its educational priorities are likely to be taken up by the effort of ensuring that the most valuable pieces of scientific and technological knowledge are passed on accurately from generation to generation in the training of the real human workers who turn the wheels of progress. And even if the techno-utopia that Kitcher envisions—in which all labour is done by artificial intelligence—came to pass, how are we to avoid a future (à la *Terminator*) in which humans are dominated by robots? The only answer that makes sense to me is that, even in a post-work utopia, the education system will have to keep an eye open to creating enough specialists to control and direct the artificial workers labouring on our behalf. Specialization in science and in education brought us to where we are, technologically speaking, and the unaddressed questions that I see in Kitcher's book mostly have to do with why this simple fact is not placed front-and-centre.

For me, the central question raised by Kitcher's book is captured in the timelessness of the title '*The Main Enterprise of the World*'. Is Kitcher proposing that we should re-value education to turn it into the main activity of the world in some *bright future* in which machines release people from the need to work? Or has education *always been* the main enterprise of the world in how it has allowed us to escape (one small innovation at a time) the worst drudgery of physical work? Both readings of Kitcher's book are possible and I propose that the most important role for education is to play the slightly routine, but *unmissable* role in human culture of being the reminder of everything that our ancestors have done to deliver us the life that is possible for us today.

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