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Educating for Intellectual Character and the AI Revolution in Education

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Abstract

While there is widespread agreement that the new AI technology will revolutionize education, the exact nature of why it will have such a dramatic effect is often left unclarified. It is argued that understanding the nature of the AI educational challenge requires us to recognize that the overarching epistemic goal of education is to cultivate intellectual character. This enables us to appreciate how AI poses a very different challenge to education than traditional forms of technology. While one can normally effectively adapt educational practices to new technology, this is not possible in the case of AI due to how it has the potential to deprive students of the cognitive activities that educators use to cultivate intellectual character. With the AI educational challenge so understood, two interconnected strategies of response are proposed: introducing ‘cloistered’ periods of instruction where students are insulated from AI-based technologies, and explicitly teaching students the theory behind educating for intellectual character. In addition, it is argued that a coordinated program of empirical study that goes along with these responses is required to ensure their effectiveness and refine their application.

Keywords Epistemology · Epistemology of AI · Epistemology of Education · Intellectual Character Education · Intellectual Virtue

Introduction

We are currently witnessing a transformation of education as AI encroaches into every corner of our lives. It’s widely observed that the challenge posed by AI to education is especially troubling, though there is less clarity about exactly why this is so.¹ In particular,

¹ For a recent high-profile discussion of these trends in contemporary higher education, see Sarofian-Butin (2025).

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all technology use in educational settings could be regarded as problematic, so what is so special about AI in this regard?

I think the doomsayers are right to be perturbed by the way in which AI is becoming embedded into educational contexts. It's crucial, however, to correctly diagnose the nature of the challenge that it poses. I will be arguing that the AI educational challenge is due to its potential to undermine certain core educational goals. This makes the difficulty that it raises for education different in kind, and not merely degree, from that posed by other forms of technology.

To defend this claim, I articulate, in § 2, what I take to be the right account of the overarching epistemic goals of education. This is *educating for intellectual character*. I use this account to show, in § 3, that AI has the potential to undermine the overarching epistemic goals of education. More specifically, I contrast the use of AI in educational contexts with traditional forms of technology and argue that only the former undermines the overarching epistemic goals of education.

I then turn, in § 4, to my positive thesis. Now that we have properly diagnosed the educational challenge posed by AI, we can respond to it. I maintain that there is a principled basis for restricting AI use in educational contexts (which, note, does not mean excluding it from educational contexts altogether). This contrasts with technology use more generally, where I maintain that there isn't a principled basis for such a restriction (at least, not in terms of the specifically epistemic goals of education anyway). Furthermore, I argue that it's important that we embed this restriction of AI in educational contexts within the framework provided by educating for intellectual character. Indeed, I suggest that we should henceforth not only educate for intellectual character, but also at the same time be explicit with students that this is what we are doing by teaching them the theory behind this approach. This is because students are only likely to embrace the technological restrictions imposed on them if they understand the threat that AI presents to their educational development. Moreover, understanding the nature and importance of intellectual character will be crucial if they are to master the cognitive skills necessary to use AI wisely.

Note that throughout this paper to keep our discussion manageable I will be focusing on higher education. Most, if not all, of what I say, however, will be applicable, *mutatis mutandis*, to other forms of education.²

² A possible exception in this regard is my claim about how we should henceforth not merely educate for intellectual character but also teach students the theory behind this approach. This is because there might be educational contexts where teaching theory in this way is too demanding, such as elementary school education. That said, there might be ways of teaching this theory that convey the essential ideas without introducing too much in the way of technicalities.

AI and Educating for Intellectual Character

Let's start with understanding why AI poses an especially troubling challenge to education. This is far from obvious. Technology has increasingly been employed in educational contexts in the last few decades and there haven't been any devastating consequences as a result.³ On the contrary, one could argue that, on the whole at least, education has been enhanced using technology. We can now expect more from our students (and, for that matter, our educators) than we did previously precisely because they have technology at their disposal that was unavailable to previous generations. To take some simple cases, just consider the positive impact that students having access to electronic calculators or word processing software has on our expectations for the work they produce.

I think that we can only start to understand why AI might pose a unique technological challenge for education by plugging in a particular conception of the epistemic goals of education. Education serves many purposes, but an essential component of any educational practice is epistemic in nature.⁴ Indeed, if a practice was unconcerned with epistemic aims at all, then it would not be a credible educational practice, even if it was described as such. Indoctrination is not education, for example, and at least one key part of the reason for this is that indoctrination involves subverting epistemic goods to promote other goals.

Once one grants that there is this essential epistemic component to an educational practice, then a natural question arises about how best to understand it. As we will see, this is very relevant to understanding why AI might pose such a pressing challenge to education. Clearly one part of the epistemic goal of education is helping students acquire knowledge and cognitive skills. But it isn't credible to suppose that this is all that educators are concerned with promoting, from an epistemic point of view. If education is just about teaching knowledge and cognitive skills, then one can simply drum those into students. Indeed, that might well be the most effective way of getting students to master them. But good educators recognize that there is much more to their role than this.

If education is just about teaching knowledge and cognitive skills, then it isn't clear why any technology use in educational contexts should be thought problematic, given that technology is a useful aid in this respect. Of course, it may be that the introduction of technology means that certain kinds of knowledge and cognitive skill are no longer taught. Now that we have the electronic calculator, for example, it's no longer so important to teach students how to do complex arithmetic in their heads. But this is not a case of technology undermining the epistemic goals of education, given that it is leading to the cultivation of more advanced knowledge and cognitive skills. Think of what we can teach students to do using electronic calculators that would have been inconceivable in a classroom hundred years ago.

So if the epistemic goal of education is just teaching knowledge and cognitive skills, then that can be entirely consistent with the introduction of technology. Why would specifically AI technology be any different? We may come to depend on this technology to deliver us knowledge and to perform cognitive tasks for us that we previously did ourselves. But that

³ Notice that our focus is on the educational *use* of technology and not the more general question of whether technological developments can have a negative impact on education. There is currently, for example, a vibrant debate about whether we should allow mobile phones in schools, on account of how they have become such a distraction. See, especially, Haidt (2024). While this is an important topic, it is orthogonal to our concerns, given that this issue doesn't concern the educational use of mobile phones.

⁴ For some general discussions of the epistemic goals of education, see Robertson (2009) and Pritchard (2013).

is already the case with the technology that we presently have, so what is the difference? Yes, there would be a difference of degree, in that AI use in educational contexts will surely lead to more disruption of current educational practices than existing forms of technology. But there doesn't seem to be any difference of kind. In particular, there isn't any fundamental conflict between AI use and the epistemic goals of education so long as we think the latter is simply concerned with the teaching of knowledge and cognitive skills.

Our strong intuition that AI poses a fundamental challenge to education thus indicates an implicit commitment to a richer conception of the epistemic goals of education. I think what it reveals is a conception of the epistemic goals of education that is concerned with cultivating *intellectual character*. There is much more involved in cultivating intellectual character than merely knowing a great deal or having lots of useful cognitive skills. Indeed, although the cultivation of intellectual character will undoubtedly lead to one having knowledge and useful cognitive skills, there is nothing about the latter that guarantees the former. This is because intellectual character is concerned with a specific set of integrated metacognitive skills that perform a managerial role in one's cognitive activity.

Think, for instance, of the metacognitive skill involved in being intellectually conscientious. Being intellectually conscientious will involve being suitably aware of, and responsive to, relevant evidence. It will mean being careful in one's reasoning and resisting jumping to quick conclusions, particularly when they are of an attractive nature. It will mean being alert to one's cognitive blindspots and so initiating extra checks where appropriate. And so on. As these examples illustrate, being intellectually conscientious functions as a metacognitive skill that ensures the effective use of other domain-specific cognitive skills. Indeed, one of the core reasons why this metacognitive skill is so useful is that it is not domain-specific like many other cognitive skills, but is rather employed to appropriately manage one's domain-specific cognitive skills.

Call the high-level domain-independent metacognitive skills, like being intellectually conscientious, *executive cognitive skills*.⁵ Executive cognitive skills are indicative of one's intellectual character. Having a good memory for names or being able to quickly solve arithmetical sums might be impressive, but in itself reveals very little about intellectual character. Knowing about someone's executive cognitive skills, in contrast, tells you a great deal about their intellectual character, as it indicates what kind of thinker and reasoner they are. This is why the integrated set of one's executive cognitive skills is central to one's intellectual character.

Reflecting on good educational practice reveals that it is geared towards the enhancement of intellectual character, and thus the cultivation of executive cognitive skills. This is part of the reason why it is thought so important to teach students how to think for themselves rather than simply drumming knowledge and cognitive skills into them. A lot of educational practice involves the facilitation of self-learning, whereby the educator scaffolds the learning of the student. When done effectively, this helps to create a learner who can, over time, come to master their own educational development. That is just to say that a fundamental epistemic goal of education is to develop students' intellectual character so that they have the executive cognitive skills that will enable them to direct their own intellectual maturation: to be careful and critical thinkers, to be open to new ideas, to be sensitive to shifting evidence, to be resilient in the face of intellectual obstacles, and so on.

⁵ For further discussion of executive cognitive skills, see Pritchard (2026).

There is an ambiguity in the notion of intellectual character in play here. On a weak construal, it just means that one is the kind of person who has effective executive cognitive skills. On a strong construal, it means that one is the kind of person who has specifically *admirable* executive cognitive skills. That one's executive cognitive skills are admirable entails that they are effective, but the converse does not hold. The weak conception of good intellectual character is most associated with those educational theorists who advocate for critical rationality as the overarching epistemic goal of education.⁶ The strong conception of good intellectual character is most associated with those educational theorists who advocate for the intellectual virtues as the overarching epistemic goal of education.⁷

We can see the difference between these two educational approaches in the motivational states that ground the executive cognitive skills. To be intellectually virtuous is to have a deep respect for the truth, with all that this involves, such as a concern for accuracy (and a dislike of inaccuracy and falsehood), a desire for gaining a correct understanding of the nature of things, a sense of delight in discovering new facts, and so on. According to proponents of educating for virtuous intellectual character, this motivational state is itself something that a good educational practice will cultivate. Our goal as educators is to instill in our students a sense of wonder, a yearning for knowledge, a desire to learn, and so on. At the heart of this is the deep respect for the truth that drives the intellectual virtues.⁸

In contrast, those intellectual character traits that are associated with critical rationality needn't essentially involve this kind of motivational state. Someone could be very effective at reasoning and arguing, for example, but approach these cognitive tasks in a purely strategic fashion, without any particular concern for the truth. For instance, perhaps they are motivated to argue well because they like how it feels when they 'win' arguments, or perhaps they take pleasure from how this impresses others. In contrast, merely being good at arguing and reasoning would not suffice for intellectual virtue if these cognitive skills weren't motivated by a concern for the truth.⁹ This difference in motivation is important to how we value these intellectual character traits. One might be *impressed* by someone's critical rationality capacities, but one *admires* someone's intellectual virtues.¹⁰

The contrast between strong and weak conceptions of intellectual character also has an axiological dimension. Virtuous intellectual character is held to have a special kind of value in terms of how it enables one to flourish as a person. In particular, the intellectual virtues are not merely practically valuable (though they are certainly that), but also finally (i.e., non-instrumentally) valuable. In contrast, educating for critical rationality is not usually associated with axiological claims of this kind.¹¹

As it happens, I endorse the strong conception of intellectual character. We do not need to settle which of these proposals is the right one to endorse for our purposes, however,

⁶ The foremost exponent of this kind of proposal in the contemporary literature is Siegel (1988; 1997; 2017).

⁷ For some of the contemporary work defending this kind of proposal, see Pritchard (2013; 2020; 2022a; 2023a; 2024b), Croce and Pritchard (2022), Baehr (2019; 2021), and Orona and Pritchard (2025).

⁸ Pritchard (2021b) describes this motivational component of the intellectual virtues as 'veritic desire'. For further discussion of the idea of truth as a fundamental good, see Pritchard (2023b).

⁹ For further discussion of the idea of an intellectual virtuous form of arguing, see Pritchard (2022c; 2024a).

¹⁰ For some of the contemporary articulations of the intellectual virtues, see Zagzebski (1996), Roberts and Wood (2007), Baehr (2011; 2025), and Pritchard (2022b). For a helpful survey of contemporary work on the intellectual virtues, see Battaly (2014).

¹¹ For some of the contemporary literature comparing these two approaches to the epistemology of education, see Siegel (2016), Baehr (2019), and Pritchard (2023a; forthcomingb).

as we can advance our thesis on either conception. As we will see, insofar as one grants the general point that the overarching epistemic goal of education is the cultivation of the executive cognitive skills that are indicative of one's intellectual character, whether in the weak or the strong sense, then that suffices to explain why AI poses such a fundamental challenge to education.

Understanding the AI Educational Challenge

Let's look again at the use of technology in educational contexts. Consider how the use of personal computers and word-processing software has changed how we write. I'm (just about) of an age where I can remember when it was common for undergraduate students to write out their essays by hand. If there was a need for an essay to be typed (which was rare), then this might still be done on a typewriter rather than a computer. The introduction of personal computers and associated word processing software had a radical effect on the cognitive processes involved in essay writing.

Part of this radical effect is that writing essays is much easier on a computer with the relevant helpful software than it would be otherwise. A professional result can be achieved with less effort. Spelling and grammar get checked automatically. One can copy and paste relevant text from other sources, such as references used in another document, or quotations from an e-book. Unsurprisingly, then, we have much higher expectations of undergraduate student essays now than we did fifty years ago when, for example, we might have reasonably overlooked minor spelling errors or missing references.

It's not just that writing essays is now easier with the technology, however, as the use of technology brings with it feedback loops that change the nature of the cognitive skills involved. For example, there is a cost to expressing one's thoughts in writing (or on a typewriter) that simply isn't involved when one drafts them on a screen. As I write these sentences I am continually editing and re-editing my words until I get them in a form that I find satisfactory. This would not be feasible if I were drafting this text by hand or on a typewriter. This means that the cognitive skills involved in writing are being transformed. In a previous age, it would have been important to be able to refine one's thoughts in one's head before committing them to writing (or typing). Now, in contrast, we can use the new technology to help us refine our thoughts as we express them.¹²

The general point is that integrating technology into cognitive practices naturally leads to changes in the cognitive processes involved. Although this might entail that certain cognitive skills are no longer required, it also usually means that the subject develops more sophisticated technology-enabled cognitive skills as a result. Today's essay writers may not be able to draft complex sentences in their heads anymore, so this is in one sense a cognitive

¹² This phenomenon of technology integration leading to feedback loops that change our cognitive processes is widely discussed under the ambit of *extended cognition*. See Clark and Chalmers (1998) and Clark (2008). Pritchard (2010; 2018a; 2018b) explores the epistemic implications of extended cognition. See also Pritchard (2018c), which specifically examines how these implications bear on education and Pritchard (2026) which expands on the example of how word-processing technology has transformed the cognitive processes associated with writing.

loss.¹³ But this cognitive skill gets replaced by another cognitive skill that is just as impressive, which is to be able to more quickly produce more sophisticated written work.

This is the sense in which technology does not in general undermine our cognitive skills, even if it might lead to the loss of some quite specific cognitive skills that get replaced by the technology.¹⁴ Even more importantly for our purposes, while technology has a capacity to transform our cognitive processes in the relevant domain, its effects are usually largely confined to domain-specific cognitive skills. In the normal case at least, technological uptake does not tend to have any direct implications for the executive cognitive skills that are representative of intellectual character.

Think again about how use of personal computers and word-processing software changes the cognitive practices involved in essay writing. As we noted above, various cognitive processes associated with this cognitive task will be transformed by the introduction of this technology. But the cognitive processes are all relatively specific to the cognitive task in question, such as being able to effectively employ the technology to formulate ideas as one drafts and redrafts one's work. Changes in these cognitive processes have no direct implications for the executive cognitive skills associated with one's intellectual character.

Take the example given above of being intellectually conscientious, for instance. Does employing personal computers and word-processing software aid or undermine the development of this executive cognitive ability? Of course, it might do one or the other in individual cases, but there seems no reason to expect any general implications of this kind. If you are intellectually conscientious, then you will employ this technology in intellectually conscientious ways. Moreover, there is no inherent reason why you would be any less intellectually conscientious just because you are now using it. If you are apt to do so, then this is surely a reason for thinking that you weren't as intellectually conscientious as previously thought. Conversely, if you're lacking in this intellectual character trait, then you will be prone to employ the technology in an intellectually lazy way. Similarly, there is no inherent reason why using this technology would prompt you to becoming more intellectually conscientious.

This is why technology in general doesn't undermine the epistemic goals of education, at least insofar as those goals are understood in terms of the development of intellectual character. This is because in the normal case the transformative effects of employing technology are felt on the lower-level domain-specific cognitive skills and not on the executive cognitive skills that are related to one's intellectual character. Accordingly, one can usually consistently introduce technology without this preventing one from pursuing educational strategies that cultivate intellectual character.

That's not to say that technology use isn't problematic in educational contexts. If it is transforming cognitive skills, then it is bound to be disruptive of traditional ways of teach-

¹³ The philosopher Sir Michael Dummett (1925–2011) once told me in conversation that all of his monographs were written on a typewriter. A first draft was annotated in hand and from that a final typescript was produced. Anyone who has read one of Dummett's books, with their notoriously long and complex sentence constructions devoted to highly technical matters of analytical philosophy, will appreciate the incredible level of cognitive ability required to write in this fashion.

¹⁴ In popular cognitive science writing at least, it has been suggested that recent developments in technology are undermining our cognitive skills. See, for example, Carr (2010) and Greenfield (2015). I argue in Pritchard (2026) that this critical line is undercut once we factor in extended cognition (see endnote 12). This can explain how (non-extended) cognitive processes that are lost to technology are more than off-set by the new extended cognitive processes that result.

ing and learning. Educators will need to adjust both the kinds of cognitive skills that are taught and the way that they are taught. Relatedly, changes will need to be made to how one's assesses student progress. Moreover, there might be a cumulative effect of introducing lots of different kinds of technology into educational contexts, such that collectively it disrupts the learning to such an extent that it interferes even with the cultivation of intellectual character. If so, then that might be a reason to stagger the introduction of technology in educational contexts. The crux of the matter, however, is that in the normal case the educational use of technology does not undermine the overarching epistemic goals of education.

This is why the emerging employment of AI in educational contexts is very different from traditional technology. It's not just that there is a difference of degree here, in that the AI is disrupting lots more cognitive processes when used in educational settings than other kinds of technology. Rather there is also a difference in kind. AI is different from other technologies in that the kinds of cognitive processes that it is taking over are the very processes that are crucial to the cultivation of intellectual character.

Let's go back to our example of essay writing as an illustration. As we noted, writing an essay on a personal computer using word-processing software changes the cognitive processes involved in essay writing. Nonetheless, many of the most important components of essay writing remain. One still has to do one's own research for the paper. One still has to formulate one's own ideas and try to impose a coherent structure onto them. One still has to go through the arduous process of drafting those ideas and then iteratively refining them through the redrafting process. Writing a good essay will often be a social enterprise too. One will need others to bounce off ideas, one will seek input in formulating one's ideas from one's peers and people who are knowledgeable in the field, and one may learn from feedback from careful readers of one's drafts.

Although when we grade essays we do so by focusing on the output (the essay), it's crucial to the educational point of an essay that students overcome these intellectual hurdles in writing their essay. They are learning to think for themselves, with all executive skills associated with intellectual character that go along with that, such as being intellectually conscientious, intellectually humble, intellectually tenacious, and so on. So long as one's technology use doesn't remove these intellectual hurdles, then it doesn't prevent essay writing from being an educational task that cultivates intellectual character.

This is precisely why AI is so disturbing from an educational point of view. The AI won't just help you write the essay; rather it will, quite literally, write the essay for you.¹⁵ Provide the AI with the essay prompt and enough information about what is required and it will do the rest. Moreover, on the whole it tends to do a rather good job, so good that often instructors can't distinguish the AI-produced essay from the real thing. And the AI is getting better all the time, such that we can reasonably expect that it will soon be able to reliably produce essays for students that are consistently better than the essays that the students would have written themselves.¹⁶ If the AI can write the essay for you (and probably do a better job of

¹⁵ Which is not to say that the AI is actually doing the reasoning involved in writing the essay that a student would have done to write a comparable essay. At least at the time of writing, AI is still just a highly effective mimic-machine. For further discussion relevant to this point, see Chomsky et al. (2023) and Shojaei et al. (2025).

¹⁶ Pritchard (forthcominga; forthcomingc; forthcomingd) expresses some reservations about the quality of the current wave of AI outputs, such that there are good grounds to be circumspect about relying on these outputs. See also Chomsky et al. (2023). We can legitimately set these concerns to one side for our current purposes, however, as doing so strengthens the challenge posed by AI that we are trying to respond to.

it), then why would you put yourself through these intellectual hurdles? But now all we have is the output. We lack the cognitive processes that were meant to be producing that output and which, I've been arguing, are essential to the educational point of a student essay assignment.

If that's right, then introducing AI into educational contexts won't have a transformative effect on the cognitive skills involved in essay writing but will simply undermine them altogether. It's not that students will still engage in the cognitive activities associated with essay writing, but do so in a way that is aided by the new AI technology. Instead, there will be no point in students writing essays and no educational purpose served in educators assigning them. Essay writing won't be done in a new fashion, enhanced by the AI technology, but not done at all. Accordingly, the cultivation of the executive cognitive skills associated with intellectual character that is usually the result of essay writing will cease to happen.¹⁷

Of course, that this occurs in the specific case of essay writing does not entail that the executive cognitive skills can't be cultivated by other means. There are more ways of cultivating intellectual character than assigning essays. And, in any case, there are lots of subject matters where the essay is not an essential teaching component anyway. But the problem should now be obvious. Pick the kind of assignments one might wish to give to students to help them cultivate intellectual character. Producing an architectural design, developing a marketing strategy, writing up a data analysis. What goes for essay writing applies, *mutatis mutandis*, for almost all the other educational assignments that we might care to focus on.¹⁸

The crux of the matter is that, rather than enhancing the educational activity, the introduction of AI eliminates the educational point of these activities altogether, as students can by-pass the cognitive processes that are crucial to the overarching epistemic goals of education while still producing the relevant outputs.¹⁹ This is the specific sense in which the challenge posed by AI to education is very different to that posed by more traditional forms of technology. AI is different because it has the potential to radically undermine our core educational goal of cultivating the executive cognitive skills that are central to intellectual character. But how then, in the AI age, do we continue to educate in a way that preserves the overarching goals of education?

Responding to the AI Educational Challenge

We have seen that to understand the educational challenge posed by AI we first need to appreciate that the overarching epistemic goal of education is the cultivation of intellectual character. This explains why AI is different to other forms of technology. Whereas in general employing technology in educational contexts does not undermine the cultivation of intellectual character, this is not so when it comes to the specific kind of technology involved

¹⁷ For further discussion of the effects of AI on the educational role of essay writing, see Hytten (2026) and Smith (2026).

¹⁸ This phenomenon whereby AI undermines executive cognitive skills has very recently gained the title 'cognitive surrender', in contrast to the more familiar kind of 'cognitive off-loading' that one finds with traditional technology use. See, for example, Shaw and Nave (2026).

¹⁹ For two recent influential discussions of the negative effects on our cognitive skills from using AI, see Kosmyrna et al. (2025) and Shaw and Nave (2026).

in AI. The good news, however, is that now we understand the nature of the AI educational challenge, we are in a better position to offer a principled response to it.

One key moral that we should extract from our discussion is that simply adapting one's learning processes so that they integrate the new AI technology is not an option. Usually this is a feasible way to go with new technology, but that's because normally the new technology being introduced is merely impacting the low-level domain-specific cognitive skills and not also the executive cognitive skills associated with good intellectual character. Since the technological revolution involved in AI is a game-changer on this score, then adaption of this kind is a non-starter.²⁰

Does that mean that we should prevent students from using AI altogether? That would also be a mistake. AI is tremendously useful, and hence our students would be at a disadvantage were they to lack access to it. It is part of the new technological reality that our students will inhabit, which means that we need them to be skilled in using it. They won't get those skills if they are excluded from its use in educational contexts.

Besides, if our diagnosis of the educational challenge posed by AI is correct, then the problem isn't AI use *simpliciter*. What we have argued is that if we simply off-load cognitive tasks to AI as we do with traditional forms of technology, then it will undermine executive cognitive abilities and thus intellectual character. That raises the question of how we ensure that students in the AI age who are embedded within AI-enabled technological environments can nonetheless cultivate their executive cognitive abilities and thereby develop their intellectual character. What kinds of educational strategies would enable students to use AI wisely such that it is a beneficial cognitive tool rather than something that undermines their development of intellectual character?²¹

What does follow from our diagnosis of the AI educational challenge is that we need a new pedagogical approach that limits AI use in important ways. We need to ensure that students are developing their intellectual character, and since AI has the potential to undermine this educational goal, then that means that there needs to be an emphasis on AI-free learning where this cultivation of intellectual character is taking place. In practice, this is going to mean that our students spend at least some of their learning time in what historian Niall Ferguson (2025) calls 'the cloister'. Like the monks of old who were cloistered away from the outside world to enable them to think and work, cloistered students would spend part of their time completely shut off from AI. Given that most technology these days is AI-enabled (or soon will be), this will likely involve using technology that has been purposively

²⁰ In a recent paper on the educational effects of AI, Sidorkin (2026) makes the interesting observation that the technological sophistication of AI will disrupt the traditional pedagogical model whereby students are required to transition in an incremental fashion through the curriculum. This way of thinking about AI effectively treats it as posing an educational challenge that is only different in degree, and not kind, from traditional forms of technology. I have argued, however, that this is not the case. This is why AI is not merely disruptive of our educational practices, but has the potential to undercut them altogether, on account of how they can undermine the core educational goal of cultivating intellectual character.

²¹ I think this point gets lost in some of the recent educational polemics against AI, whereby it is treated as inevitable that AI use will undermine the core goals of education. See, for example, Bialystok (2026). See also Hytten (2026), who describes the kind of AI use that (in our framework) undermines executive cognitive skill development as an 'irresistible temptation'. If the diagnosis of the educational challenge posed by AI that I have offered is correct, however, then it suggests strategies of response.

stripped of this component.²² The framework that we have offered provides a rationale for cloistered education. For only in the cloister could students be obliged to engage in the educational practices that are essential to the development of their intellectual character, and which are presently threatened by AI use.

Crucially, this cloistered time will only make up part of student education, with the rest spent with normal access to AI-enabled technology.²³ The beauty of the cloistering proposal is that it creates the space for students to develop their intellectual character without preventing them from taking advantage of the opportunities provided by AI. The idea is that once students have developed their intellectual character in this way, then they will be able to use the AI as a tool that enhances their cognitive abilities. Instead of simply off-loading cognitive tasks to the AI, to the detriment of their intellectual development, they will instead be primed to utilize the AI in intellectually appropriate ways. In effect, what the cloistering strategy achieves is to ensure that AI use is akin to normal technological uptake in educational settings, such that it aids one's cognitive processes as opposed to simply undermining them, including the cognitive processes involved in developing one's intellectual character.

There is a second way that we should change our educational practices in response to the AI challenge, which follows from the change just described. Educating for intellectual character doesn't normally require that one also teach the underlying theory. The challenge posed by AI provides us with a compelling rationale for combining the former with the latter. This will involve explaining both the importance of intellectual character and why it is central to education. Adding this additional component to one's pedagogical practices in response to the AI challenge has two important benefits.

The first is that it enables students to understand why their access to technology is being restricted. It is only by teaching the theory behind educating for intellectual character that one is in a position to explain to students how AI use can undermine one's intellectual character and why this is significant to their educational development. This understanding will be especially important given that students might otherwise suppose that this technology would be helpful to their education. Students will be much more likely to benefit from cloistering if they can understand why it is beneficial.

The second is that having an understanding of the underlying theory behind educating for intellectual character will help students to be able to use AI wisely. As we've noted, the problem is not AI use *simpliciter*, but the natural employment of it, like any other technological resource, to offload cognitive tasks. If students are to re-engage with AI outside of the cloister, then it is not enough that they have developed their intellectual character. Instead, they also need to appreciate the specific way that AI use can undermine intellectual character. Only then will they be in a position to employ it such that it enhances, rather than undermines, their intellectual character. But that requires that they have the foundational understanding of the nature and importance of intellectual character in the first place.

Our diagnosis of why AI poses such a dramatic challenge to education has thus led us to two concrete strategies: that a core part of student education should be cloistered, and that students should not only be educated for intellectual character but also taught the underlying

²² Ferguson (2025) thinks that the cloistered students should be shut off from *all* technology (as, indeed, monks usually are), but I don't think this is required. As we have noted, it is not technology per se that poses the educational barrier but rather the specific kind of technology involved in AI.

²³ Ferguson (2025) refers to the periods when students are outside of the cloister engaging with technology without restriction as 'the starship'.

theory. So expressed, both strategies are quite general. Moreover, whether they are successful is, of course, at least partly an empirical question. I think we should embrace both points. Indeed, responding to the second issue will help us respond to the first, so let's start there.

It is not enough to implement these strategies, but we should also be actively measuring their effects on students. In fact, we don't need to wait until the AI revolution takes hold to do this. There are contemporary educational projects that aim to inculcate educating for intellectual character. Moreover, some of these projects involve explicitly teaching students the theory behind this educational approach.²⁴ Accordingly, we can already track how students who have benefitted from these initiatives use AI and how this differs from students who have not been taught in this way. Indeed, empirical work of this kind is currently taking place and should give us a defeasible handle on whether changing our educational approach in the ways mentioned above will entail that students who have been explicitly educated for intellectual character will make better use of AI.²⁵

Naturally, this is just the beginning of the empirical work that is required. Once we have the results of this work, however, then it can help us make our two strategies in response to AI more concrete. Let me give four examples by way of illustration.

First, I would hope that the empirical work shows that we respond best to the AI threat by educating for *virtuous* intellectual character specifically. If that's right, then that would lead to more specific educational strategies than simply educating for intellectual character in general. Second, we need to know how much cloistering is effective. What should the balance be between a cloistered and an 'open' education? The empirical work can point us in the right direction here too. Third, what form should the cloistering take? We have noted that the executive cognitive skills that make up intellectual character are not domain-specific, though we often naturally acquire them via an engagement with particular disciplines. Indeed, it would be hard to argue even impossible to develop them in the abstract.²⁶ Is there a benefit to students with different academic profiles being subject to distinct educational activities while in the cloister? This is the kind of question that is difficult to answer in the abstract, without further empirical study of the cloistered students. Finally, fourth, to what extent does making the underlying educational theory explicit to the students enhance the extent to which they embrace cloistering and its effects on their use of AI? Having reliable data in this regard would help to determine how much emphasis should be placed on this aspect of our response to the AI challenge.

²⁴ For example, the campuswide 'Anteater Virtues' curriculum project that I direct at the University of California, Irvine is devoted to bringing the educating of intellectual character (specifically *virtuous* intellectual character) into the heart of the curriculum. It is also an explicit part of this curriculum project to teach students the theory underling this educational approach. For more details about this project, see <https://anteatervirtues.uci.edu>.

²⁵ This is precisely the kind of empirical research that we are currently conducting at the University of California, Irvine as part of the 'Cultivating Intellectual Character in the AI Age' project (John Templeton Foundation, #63365). For some of the empirical work arising from this project, see Ojeda-Ramirez et al. (2023); Rismanchian and Doroudi (2023); Rismanchian et al. (2026a, b). Note that the focus for this project is good intellectual character in the specific sense of virtuous intellectual character. See also endnote 24.

²⁶ Pritchard (2021a) argues that there is a certain way of teaching philosophy, such that it is divorced from any particular subject matter, that could be regarded as a pure form of educating for intellectual character (specifically, of *virtuous* intellectual character). Such a proposal is controversial, however, as it is commonly held in educational theory that the kinds of cognitive skills involved in intellectual character development ('critical thinking' skills, broadly construed) can only be mastered via domain-specific instruction. For a recent influential defence of this claim, see Willingham (2008).

Concluding Remarks

It has been argued that the educational challenge posed by AI is unique to this specific kind of technology. This is because of the overarching role that educating for intellectual character plays in the epistemic goals of education and the manner in which AI use can undermine the development of intellectual character. The upside of grasping the nature of the AI educational challenge is that we then have a principled basis on which to formulate strategies for responding to it. We should not allow AI use as if it is just another technology that gets employed in the classroom and then aim to adapt our educational practices accordingly. This would have disastrous consequences, as it would undermine the overarching epistemic goals of education. Rather, what is required is to incorporate a practice of cloistering students away from AI-enabled technology for specific periods of instruction so that they can be educated for intellectual character. I've further argued that we should teach students the theory behind educating for intellectual character so that they are able to buy-into this technological restriction and acquire the foundational understanding required to use AI wisely. The combined effect of these two strategies is to enable students to continue developing intellectual character even in the AI age. Moreover, it will also enable them to become effective users of the new AI technology. Rather than AI undermining their development of intellectual character, it will instead become an incredibly useful tool that they can employ that will enhance their cognitive skills in important ways.

The incoming AI age will pose challenges for us all, with education just one key facet of the technological revolution that is on its way. The proposals put forward here are not a panacea. As we've noted, empirical work will be required to determine their effectiveness and ascertain how they should be employed in detail. But they do at least offer us a principled basis on which we should proceed to meet the AI educational challenge, one that is grounded in an accurate understanding of the nature of this challenge.²⁷

Data Availability Not applicable.

Declaration

AI USE: AI was not used at any point in the writing of this paper.

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²⁷ Earlier versions of this paper have benefited from presentations at a workshop at Stanford University, with commentaries from Henry Lara-Steidel and Rebecca Taylor (February 2026), an invited plenary talk at the 'AI Epistemics' conference in Athens (April 2026), and an invited American Philosophical Association Pacific Division symposium, with commentaries from Heather Battaly and Nicole Garcia (April 2026). Thanks also to Jason Baehr, Geoff Cox, Alisha Rajarantnam, and Amy Shuffelton. This research was supported by the John Templeton Foundation ('Cultivating Intellectual Character in the AI Age', #63365), by the Educating Character Initiative of the Program for Leadership & Character at Wake Forest University, funded by Lilly Endowment Inc ('Educating for Virtuous Intellectual Character (EVIC)', #2024II15), and by the Czech Science Foundation ('Vicious Epistemic Cultures', #24-11282S, PI: Laura Candiottio, University of Pardubice). The opinions expressed in this publication are those of the authors and do not necessarily reflect the views of the John Templeton Foundation, Wake Forest University, Lilly Endowment Inc, or the Czech Science Foundation. This paper was written while a Senior Research Associate of the *African Centre for Epistemology and Philosophy of Science* at the University of Johannesburg.

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