# Cultivating Curiosity in the Information Age

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**Abstract**
In this paper, I explore the role that the intellectual virtue of curiosity can play in response to some of the most pressing challenges of the Information Age. I argue that virtuous curiosity represents a valuable characterological resource for the twenty-first century, in particular, a restricted form of curiosity, namely inquisitiveness. I argue that virtuous inquisitiveness should be trained and cultivated, via the skill of good questioning, and discuss the risks of failing to do so in relation to the design and use of novel technologies. If left unchecked, I argue, vicious forms of curiosity can emerge, with broad implications for society as a whole. Thus, we should seek to cultivate virtuous curiosity and teach the skill of good questioning to those of us (in principle, all of us) who use and rely on technology in our work and lives.

The nature and rate of change over the past century have brought about a number of distinct challenges that now face us on a global scale. These include rapid globalisation and increasing inequality associated with widespread societal and environmental damage, a new era of instant connectivity facilitating the spread of 'fake news' and conspiracy theorising, the effects of increased (actual or apparent) polarisation across the political spectrum, the rise of social media, and a complex range of associated harms brought about by a combination of online anonymity, novel technologies, and incentive structures driven by the attention economy. In order to meet these varied challenges, we must, it seems, continue to change – as individuals, as communities, and even as a species.

In this paper, I explore the role that curiosity has to play in this changing world. I treat curiosity as an intellectual virtue and argue that virtuous curiosity has important features that render it a valuable characterological resource in light of many of the complex and immediate concerns of the twenty-first century. I examine the role of a restricted form of curiosity, namely inquisitiveness, and argue that virtuous inquisitiveness should be trained and cultivated, via the skill of good questioning. Lastly, I discuss the risks of failing to cultivate virtuous curiosity (and good questioning), particularly in relation to the design and use of the novel technologies of the twenty-first century. If left

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unchecked, I argue, vicious forms of curiosity can easily emerge, with broad implications for society as a whole. Thus, we should seek to cultivate virtuous curiosity and teach the skill of good questioning to those of us (in principle, all of us) who use and rely on technology in our work and lives. This is one valuable characterological strategy for tackling some of the most distinctive and pressing challenges we face.

## 1. Why curiosity

Why focus on the virtue of curiosity, in particular, as opposed to any one of the other intellectual, or indeed moral or civic virtues? Of course, my aim is not to suggest that cultivating curiosity is the only characterological strategy worth pursuing. Far from it. Nonetheless, curiosity has a distinctive role to play insofar as it features prominently in our intellectual lives from an early age and is, arguably, a (perhaps *the*) foundational intellectual virtue.

This view of curiosity as foundational is shared by a number of scholars. In *The Philosophy of Curiosity*, for example, Ilhan Inan (2012) writes: '[I]t is difficult even to imagine how our intellectual achievements would have been possible without the basic motivation of curiosity' (p. 1). Similarly, Nenad Miščević (2007) describes curiosity as the 'mainspring of motivation' and identifies it as 'the *core motivating* epistemic virtue' (p. 246, emphasis original). Jason Baehr (2011) places curiosity in the first of his categories in a taxonomy of the intellectual virtues, labelled 'initial motivation' (p. 21), and regards curiosity as a key intellectual virtue to educate for. I have argued elsewhere for the primacy of curiosity (more specifically, inquisitiveness) in educating for intellectual character, in part due to its status as a foundational intellectual virtue (Watson, 2016). Curiosity serves as a basic motivation for much of our intellectually virtuous activity and, as such, plays a significant role in initiating intellectually virtuous inquiry and shaping intellectual character.

The significance of curiosity is also highlighted by observing its shifting reputation throughout history (particularly in the West). In the twenty-first century, curiosity is typically represented in almost entirely positive terms but historically it has also accrued negative connotations. Throughout a significant period of Western intellectual history, curiosity was vilified as a vicious form of pride, particularly scorned in the early Christian context of Medieval Europe (Harrison, 2001). As a result, even today curiosity can be associated with prying and meddling in the affairs of others, or simply wanting to know more than is appropriate or proper. One can think of



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'morbid curiosity', whereby a person seeks out particularly gruesome or unsavoury details, or of the well-known aphorism that curiosity 'killed the cat', warning of the dangers of an improper desire to know. The historical vilification of curiosity, and its subsequent mixed associations in common parlance, underline the complex and significant role that it plays in our intellectual and, indeed, moral and political lives.

A second reason for focusing on curiosity in the context of this volume derives directly from the nature of the change that we have seen in recent decades. That change has been largely brought about by significant technological and scientific progress. In its positive contemporary manifestation, curiosity is often associated with just such technological and scientific progress. It is NASA's Curiosity rover, for example, that was sent to explore the surface of Mars. Curiosity is, likewise, revered as an essential quality of many of the most famous scientists of the past century. The Nobel Prize committee asserts that it was 'Marie Curie's relentless resolve and insatiable curiosity [that] made her an icon in the world of modern science.'[1] Likewise, Einstein is well-known for extolling the value of curiosity and questioning:

> The important thing is not to stop questioning. Curiosity has its own reason for existing. One cannot help but be in awe when one contemplates the mysteries of eternity, of life, of the marvellous structure of reality. It is enough if one tries to comprehend only a little of this mystery every day. (*Life Magazine*, May 2, 1955).

These associations suggest an important role for curiosity, not only as a basic motivation for intellectually virtuous inquiry in general, but more specifically, as an essential ingredient of fruitful technological and scientific inquiry. It is precisely technological and scientific inquiry that have determined many of the recent rapid changes in our ways of living and communicating with each other, the results of which now dominate the daily work and lives of a large proportion of the global population (arguably everyone, whether in virtue of access or exclusion). Thus, as it has done throughout history, curiosity continues to feature centrally in our intellectual and moral lives. In particular, it has an important and distinctive role to play in setting and steering the course of technological and scientific progress and thus in tackling many of the challenges we now face as a result of rapid technological and scientific change. In short, it is worth

[1] https://www.nobelprize.org/womenwhochangedscience/stories/marie-curie [Accessed: 11 Nov 2021]



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paying special attention to the virtue (and associated vices) of curiosity in the contemporary world.

## 2. What is curiosity

Curiosity has attracted increasing attention from a variety of perspectives in recent years, including epistemology, psychology, linguistics, and political theory (see, for example, Inan, 2011; Inan, Watson, Whitcomb, Yigit (eds.), 2018; Zurn and Shankar (eds.), 2020; Zurn, 2021). Different authors treat curiosity variously as an emotion (Silvia, 2008; Brady, 2009), a mental state (Inan, 2011), or (more traditionally) a desire (Kvanvig, 2003; Whitcomb, 2010). Still others treat curiosity as a character strength (Peterson and Seligman, 2004) or as an intellectual or moral virtue (Baumgarten, 2001; Miščević, 2007; Baehr, 2011; Watson, 2018a; 2018b). It would, moreover, be misguided to assume that these characterisations are mutually exclusive. Rather, they represent different angles and perspectives taken by authors across disciplines and sub-disciplines, involved in a wide range of research concerning curiosity.

My own work has focused primarily on curiosity as an intellectual virtue. This treatment is particularly salient if one is concerned, not merely with an analysis of curiosity but with advancing an argument in favour of its cultivation. As opposed to emotions, desires, and mental states, virtues are more often the focus of training and education. The intellectual virtues are perhaps especially apt for this given the role of intellectual skill in the manifestation of intellectual virtue (which I will return to in due course). Aristotle himself saw intellectual virtues as a proper object of education, stating in the opening line of Book II of the *Nicomachean Ethics* that 'intellectual virtue owes both its inception and its growth chiefly to instruction' (*NE*, Book II, 1103a).

What then does it mean to be virtuously curious. According to my view, the virtuously curious person is *characteristically motivated to acquire worthwhile epistemic goods that she believes she lacks*.[2] This account of virtuous curiosity follows the model of defining intellectual (and moral) virtues in terms of a 'characteristic motivation', employed by authors such as Linda Zagzebski (1996) and Jason Baehr (2011). The motivation is characteristic in the sense that it constitutes a stable disposition in the curious person's character (as opposed to a

[2] I have presented and defended this account of the intellectual virtue of curiosity in detail elsewhere (Watson, 2018a; 2018b).



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fleeting whim). Moreover, this characteristic motivation, according to Zagzebski (1996), is action-guiding, providing us with 'a set of orientations toward the world' (p. 136), and it must be attached to some kind of reliable success or skill such that, '[A] person does not have a virtue unless she is reliable at bringing about the end that is the aim of the motivational component of the virtue' (p. 136).

In addition, my account of virtuous curiosity has three distinctive features that are worth highlighting. Firstly, virtuous curiosity concerns the *acquisition* of what I will collectively term 'epistemic goods'. These are goods such as information, knowledge, understanding, and truth – all of which pertain to the epistemic dimension of our lives. While all intellectual virtues aim, in some sense, at epistemic goods or, in Zagzebskian terms, at 'cognitive contact with reality' (Zagzebski, 1996), curiosity is defined in terms of the acquisition of these goods (for the purpose of cognitive contact with reality). Contrast this with other intellectual virtues, such as open-mindedness or intellectual humility, where the distinctive aims are not so much acquisition as perhaps evaluation or regulation. In the case of virtuous curiosity, acquisition itself is the defining aim. Notably, it is, I think, this distinctive feature of virtuous curiosity that suggests it as a plausible candidate for a (perhaps *the*) foundational intellectual virtue.

Secondly, virtuous curiosity is defined in terms of the acquisition of *worthwhile* epistemic goods. This feature of virtuous curiosity entails that the virtuously curious person is not simply motivated to acquire any and all epistemic goods. Rather, she is motivated to acquire those epistemic goods that are worthwhile, relevant, or important in some sense. Determining what precisely it means for epistemic goods to be worthwhile is a significant task concerning epistemic value. I will return to this in due course. For now, one need only agree that not all epistemic goods are equally worthwhile all of the time, in order to allow for this constraint on virtuous curiosity. The virtuously curious person does not seek out any and all epistemic goods (think again of 'morbid curiosity'). She seeks out those that are worth having from the point of view of intellectually virtuous inquiry.

Thirdly, the virtuously curious person is only motivated to acquire those worthwhile epistemic goods that she believes she *lacks*. I am not curious (virtuously or otherwise) if I seek out information that I already possess (although it might naturally be described as a curious thing to do, in an alternative sense of the word). Curiosity is fundamentally born out of a recognition of ignorance. This connection between curiosity and ignorance is



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examined in detail by Ilhan Inan (2012), who notes that when 'awareness of ignorance is coupled with an interest in the topic, it motivates curiosity' (p. 1). Much like the acquisitive nature of curiosity, this distinctive feature of the virtue speaks to its characterisation by various authors as an 'initial' or 'mainspring' motivation for intellectually virtuous inquiry (Miščević, 2007; Baehr, 2011). It is in virtue of recognising that one is ignorant, that one first begins to inquire. To reiterate, then, the virtuously curious person is *characteristically motivated to acquire worthwhile epistemic goods that she believes she lacks*. We can now consider the distinctive value of this virtue.

## 3. The value of virtuous curiosity

There is much to be said about the value of virtuous curiosity. I have already suggested that curiosity plays an important role in the initiation of intellectually virtuous inquiry and in the development of intellectually virtuous character. A stable, consistent form of curiosity has also been associated with increased wellbeing (Lydon-Staley, Zurn and Bassett, 2020) and has been advocated as a form of political resistance (Zurn, 2020; 2021). Let us focus, however, on the value of virtuous curiosity in light of recent and rapid technological and scientific change.

Arguably the most significant technological change that has occurred in the past century has been the invention of the Internet, making possible the almost instantaneous exchange of information across global distances, among large sections of the population (in principle, everyone). As such, we are now, more than ever, living in a deeply information-centric world: the so-called Information Age. This Age is characterized (according to one source that surely typifies it – Wikipedia) as 'a rapid epochal shift from the traditional industry established by the Industrial Revolution to an economy primarily based upon information technology.'[3] This shift to information technology, vastly expedited by the Internet, has resulted in the exponential growth of available information alongside a new immediacy with which it can be accessed and communicated. These are some of the hallmarks of our changing world.

Curiosity plays a valuable, indeed vital role in this world of information. It is, after all, curiosity that frequently guides the search for

[3] https://en.wikipedia.org/wiki/Information_Age [Accessed: 12 Nov 2021].



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information in the first place and steers our course as we hunt through the multitude of epistemic goods that are on offer. This role for curiosity is not new to the Information Age, *per se* – it is as old as information itself. But the affordances of the Internet – the sheer amount and breadth of information now at our fingertips – have placed new emphasis on our ability to search and find the information that we need in useful and efficient ways. Put simply, the Internet has made it ever more essential, epistemically and practically, that we use our curiosity well; that we are virtuously curious.

This is perhaps especially clear in the context of the purported 'post-truth' socio-political climate of recent years. Post-truth was famously defined (and crowned 'word of the year') in 2016 by *Oxford Dictionaries* as 'Relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief.'[4] This post-truth condition suggests a deterioration of the defining features of curiosity among the general population. A dual failure whereby people are increasingly disinclined to acquire worthwhile epistemic goods (or indeed any epistemic goods) and, at the same time, increasingly disinclined to acknowledge their own ignorance or other intellectual shortcomings. The cultivation of virtuous curiosity is one characterological strategy that can and should be deployed to combat the emergence of these epistemic and characterological failings in the post-truth world.

In addition, as a foundational intellectual virtue, curiosity has a number of characterological effects that render it particularly valuable in the face of pressing contemporary challenges. By 'characterological effects', I mean effects that the exercise of virtuous curiosity has on the character of the virtuously curious person, beyond the manifestation of virtuous curiosity itself. One might also think of these as features or aspects of virtuous curiosity that have distinctive profiles as intellectual virtues in their own right. Thus, if I am praised for being virtuously curious, then I can also be praised for these other intellectual virtues, which are, in this case, brought about by my being virtuously curious. Much like a person who trains to be physically strong may be admired for her physical strength and, at the same time, for her core stability. Her strength and her stability are distinct physical attributes but they bear a close relation to each other; her strength has the physical effect of increasing her stability

[4] https://languages.oup.com/word-of-the-year/2016/ [Accessed: 15 Nov 2021].



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and, at the same time, her stability is an important aspect of her strength.

Likewise, virtuous curiosity has the characterological effect of increasing the exercise of certain other intellectual virtues and, at the same time, these are an important aspect of virtuous curiosity. A very strong version of the claim that curiosity is a foundational intellectual virtue might in fact suggest that *all* of the intellectual virtues are aspects of virtuous curiosity and can thereby be considered characterological effects of virtuous curiosity (a kind of unity of the intellectual virtues thesis, with curiosity at its heart). I will not defend that strong claim here, sofor present purposes, I will focus on just two.

The first of these characterological effects derives from the first two distinctive features outlined in Section II: the virtuously curious person is characteristically motivated to *acquire worthwhile epistemic goods*. As such, the virtuously curious person exhibits a kind of intellectually virtuous *attentiveness*. Ironically, relatively little attention has been paid to virtuous attentiveness among virtue epistemologists to date. This virtue nonetheless appears on several standard lists of intellectual virtues, including Baehr's (2015) nine 'Master Virtues', deployed as a basis for much of his work in intellectual virtue education. In his discussion of attentiveness in the classroom, Baehr (2015) identifies three key features of the virtue: the attentive person is 'present' when learning, listens, and 'is quick to notice and is capable of giving sustained attention to *important details*' (p. 95, emphasis original). As such, virtuous attentiveness is not merely about 'paying attention' but is about actively engaging with and carefully attending to the 'important details' of one's environment or the subject matter under consideration.

On this plausible account of virtuous attentiveness, it shares something in common with virtuous curiosity. Namely, the motivation (and ability) to pick out and attend to the information, knowledge, understanding, and truth that is worth having in a given context. As such, intellectually virtuous attentiveness naturally features in the exercise of virtuous curiosity. If one succeeds in being virtuously curious, then one has also exhibited a degree of virtuous attentiveness in the acquisition of epistemic goods, attending to the worthwhile goods and ignoring the rest. Thus, virtuous attentiveness is a characterological effect of virtuous curiosity.

This close relationship between attentiveness and curiosity speaks to the value of curiosity, in and of itself. The virtuously curious person enjoys the benefits of not one but (at least) two intellectual virtues. In other words, virtuous curiosity offers good 'bang for one's intellectual buck'. In addition, it is not difficult to appreciate



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the particular significance of this characterological effect in the Information Age. In an increasingly fast-paced, information-centric world, the ability to pick out and attend to the information that is worth having and ignore the overwhelming flood of information that is not, is highly significant. Indeed, much like curiosity itself, this ability is arguably becoming ever more essential in light of the growing prevalence of online misinformation and 'fake news', as well as potential abuses of the attention economy (Marwick, 2015; Wu, 2017; Williams 2018). The fact that virtuous curiosity increases the exercise of something else that we value – virtuous attentiveness – provides further reason to value curiosity, over and above the value that has already been identified.

The second characterological effect of virtuous curiosity derives primarily from the third distinctive feature outlined in Section II: the virtuously curious person is characteristically motivated to acquire worthwhile epistemic goods *that she believes she lacks*. As such, the virtuously curious person exhibits a kind of intellectually virtuous *humility*. Unlike attentiveness, intellectual humility has received significant attention from virtue epistemologists in recent years (Roberts and Wood, 2007; Hazlett, 2012; Kidd, 2015; Whitcomb et al., 2017; Tanesini, 2021). Prominent accounts differ to some degree, particularly concerning the question of whether intellectual humility is best understood as an absence of the vices of pride (Roberts and Wood, 2007) or the presence of a particular ability, namely, the ability to recognize and 'own' one's intellectual limitations (Whitcomb et al., 2017). Most recently, intellectual humility has been characterised by Alessandra Tanesini (2021) as a kind of accurate assessment of one's intellectual strengths and weaknesses.

On any of these accounts of intellectual humility, there is a natural correlation with virtuous curiosity. The intellectually humble person must recognise and own her intellectual limitations, including acknowledging when she is ignorant. As we have seen, curiosity is born out of precisely this recognition of ignorance. In the case of virtuous curiosity, moreover, a person must have also discerned (consciously or not) that whatever knowledge or information she is missing, is worth having. In any number of situations where there exists a real or perceived expectation that one already knows this or that piece of worthwhile information, exposing the fact that one does not may require intellectual humility. Even without this expectation, the acknowledgement itself constitutes a (perhaps weaker) exercise of the virtue. As such, like virtuous attentiveness, intellectually virtuous humility naturally features in the exercise of virtuous



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curiosity. If one succeeds in being virtuously curious, then one has also exhibited a degree of intellectual humility by accurately assessing and 'owning' one's ignorance. Thus, intellectual humility is a characterological effect of virtuous curiosity.

Again, this close relationship between intellectual humility and curiosity speaks to the value of curiosity, in and of itself. The virtuously curious person enjoys the benefits of not one but now three intellectual virtues. Yet more 'bang for one's intellectual buck'. Moreover, as with attentiveness, it is not difficult to perceive the particular significance of this characterological effect in the contemporary world. The increased attention that has been paid to intellectual humility across several disciplines, including philosophy, psychology, theology, and political theory, is at least in part due to a perceived rise in the threats born of a notable absence of the virtue in both public and private life. The rise of extremism in various forms, increased political polarization, and post-truth conspiracy theorising are just three phenomena that appear to expose particular failures of intellectual humility in the contemporary epistemic and political landscape. The cultivation of intellectual humility is viewed by numerous commentators as a viable characterological strategy to address at least one underlying cause of these, and other issues (Baehr, 2011; Hazlett, 2012; Kidd, 2015; Lynch, 2017; Tanesini, 2018; 2021; Pritchard, 2021).

The existence and nature of these multiple threats to epistemic and political life, moreover, can be in part attributed to the novel technologies of the Information Age, including via mechanisms such as online 'echo chambers' and 'bubbles', which shield users from ideas and information that may challenge or undermine their own convictions. The interaction between novel technologies and novel expressions of vices such as arrogance and 'superbia' (Tanesini, 2021) is a rich topic for investigation. For our purposes here, it suffices to note that intellectual humility is an important virtue to cultivate in the social and political climate of the twenty-first century. Again, the fact that virtuous curiosity increases the exercise of intellectual humility provides further, independent reason to value curiosity in the contemporary world.

## 4. Cultivating (a restricted form of) curiosity

I have indicated that virtuous curiosity has an important role to play in the initiation of intellectually virtuous inquiry and, specifically, in the fruitful progress of technological and scientific inquiry. In



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addition, I have argued that virtuous curiosity is vital for navigating a deeply information-centric and problematically post-truth world, and that it has at least two significant characterological effects in the form of intellectually virtuous attentiveness and intellectually virtuous humility. These latter are both valuable virtues in and of themselves, with distinctive salience in the twenty-first century. Thus, virtuous curiosity is a valuable characterological resource that should be cultivated to help address a number of society's most complex and immediate concerns.

How then should we go about cultivating virtuous curiosity (in ourselves and others). I will indicate one key strategy that emerges from consideration of a restricted form of curiosity, namely inquisitiveness. I call inquisitiveness a restricted form of curiosity because, like the virtuously curious person, the inquisitive person is characteristically motivated to acquire worthwhile epistemic goods that she believes she lacks. However, she goes about this in a specific way, that is, by asking questions. In contrast, the curious person does not *necessarily* ask questions. She may, for example, acquire worthwhile epistemic goods by going for a walk or watching YouTube videos. The inquisitive person manifests her curiosity specifically by asking questions. Thus, inquisitiveness is a restricted form of curiosity, much like, for example, deadlifting is a restricted form of strength training. Put another way, inquisitiveness is one way of being virtuously curious. More fully, I characterise the virtuously inquisitive person as one who is *characteristically motivated and able to engage sincerely in good questioning* (Watson, 2015).

Virtuous inquisitiveness thus entails the intellectual skill of good questioning. It is this skill that suggests inquisitiveness as a particularly promising candidate for cultivating virtuous curiosity. To see this, it is worth taking a closer look at good questioning itself. The practice of questioning in general is, of course, both familiar and ubiquitous, but good questioning is a skill and, like all skills, some people are better at it than others. So, what exactly does it mean to be a good questioner. We can typically identify good questioning when we see it. Perhaps even more typically we know when we have seen or experienced bad questioning. Think of the standard questions in a customer satisfaction survey or an off-the-shelf employee progress review. Similarly, good and bad questioning occur in interpersonal interactions. Most of us know someone who has a knack for asking important or insightful questions and, alternatively, someone who manages to ask exactly the wrong questions every time.

Despite its intuitive familiarity, however, good questioning is a complex and dynamic skill. In order to offer an account of this



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skill, I begin by taking questioning in general to be a form of information-seeking.

When one engages in questioning (good or bad), one is typically in the business of 'finding things out'.[5] Transforming questioning into *good* questioning means engaging in this activity in a skilful manner. This elevates good questioning above mere information-seeking in two ways. When we engage in the skill of good questioning we do not simply seek information, rather we *competently* seek information that is *worth having*. I will elucidate each of these conditions.[6]

Firstly, good questioning requires seeking *worthwhile* information. This means attending to the 'what' of the question; what information is the questioner attempting to find out. I call this 'what' the content of a question. This content comprises the target information that the questioner is seeking when asking a question; it is 'what' they are trying to find out. This feature of good questioning entails that the good questioner is not simply trying to find out any and all information. Rather, she is seeking information that is worthwhile, relevant, or important in some sense. Recall that the same condition applies to virtuous curiosity. This makes sense because good questioning is a defining feature of virtuous inquisitiveness, which is a restricted form of curiosity. We can now look at this 'worthwhileness' condition in a little more detail.

There are two basic senses in which information can be considered worthwhile in the context of good questioning (and virtuous curiosity). In the first sense, good questioning excludes cases of trivial or disvaluable information-seeking. We might think, for example, that tracking down the precise alphanumeric URL of one's most recent internet search results constitutes trivial information-seeking, especially when the same or similar results can be found by simply re-typing the search terms into a search engine. Finding out that the URL ends with an '8' is unlikely to amount to important or valuable information, in most cases. Likewise, there is plenty of information and, especially, misinformation available online that is not merely trivial but actively disvaluable or harmful to seek. The search term

[5] Of course, this is not the only reason we engage in questioning. We ask questions for many different reasons, such as engaging in polite conversation, impressing colleagues, and so on. Nonetheless, I take questioning to be fundamentally an epistemic practice, and a question to be definitively an information-seeking act. I have defended these claims in a number of places, including most extensively in Watson (2021).

[6] I have presented and defended my account of good questioning in a number of places, including Watson (2018c) and Watson (2019).



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'red pill', for example, returns among other things, large amounts of misogynistic misinformation concerning sex and gender, rooted in the men's rights movement. Falling down this kind of online misinformation rabbit hole may be both epistemically disvaluable and actively harmful to the information-seeker. The good questioner, online or otherwise, will avoid seeking out trivial, disvaluable, or harmful information (and misinformation).[7]

Worthwhile information-seeking, in the second sense, requires the good questioner not only to avoid seeking certain information but actively to seek out relevant, valuable, or significant information, when engaged in questioning. The good questioner will seek only the information that she needs or wants and, in doing so, will avoid the large amount of irrelevant, insignificant, or harmful information that is also available to her. If I am using the internet to understand how the Japanese parliamentary system operates, for example, I should use search terms like 'Japanese parliamentary system' and avoid search terms like 'red pill' or 'top ten cat videos'. Put like this, the point is a simple one but it is nonetheless significant in an age where endless distraction is at our fingertips and there is profit to be made from proactively directing our attention online. It is not hard to see that some instances of questioning falter precisely in virtue of the questioner's failure to seek out relevant, valuable, or significant information; in short, information that is worth having. Thus, the skill of good questioning requires the questioner to engage in worthwhile information-seeking, both through the avoidance of trivial, disvaluable, or harmful information and in the acquisition of information that is relevant, valuable, or significant.

Secondly, good questioning requires seeking (worthwhile) information *competently*. Competently seeking information requires attending to the 'who', 'when', 'where', and 'how' of the question; who is being asked, when and where are they being asked, and how are they being asked. I call these the contextual and communicative components of good questioning. In addition to targeting worthwhile content, these further components reveal the dynamic

[7] Determining precisely why examples such as these constitute trivial, disvaluable, or harmful information-seeking is both complex and contentious. There is nonetheless broad consensus that some information is indeed trivial, disvaluable, or harmful to possess. As such, it is also broadly uncontentious to maintain that one can seek this information by means of questioning and that doing so is not something we typically consider to be worthwhile. Good questioning requires the questioner to avoid this.



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complexity of good questioning as both an epistemic and practical skill. One's questions can misfire in numerous subtle and interconnected ways. One may go wrong by asking the wrong person or source, for example. Consider the difference between consulting a search engine and a loved one for advice on a major life decision. Likewise, a question may miss its target because it is badly timed or the situation in which it is asked is misjudged. Even more subtly, the tone or delivery of a question can affect its reception and effectiveness, even when the information sought is worthwhile. All of these factors can prevent a person from engaging in good questioning.

Notably, competent information-seeking does not permit information that is acquired by accident or luck. On the other hand, it does not always require that the information sought is in fact acquired. Rather, in certain circumstances one may competently seek information without actually acquiring it. One may, for example, competently search for a colleague's contact details online, but fail to acquire them because the colleague has not updated their contact information. Good questioning requires competent information-seeking but successfully acquiring information is neither necessary nor sufficient. Thus, questioning is good in virtue of competent and worthwhile information-seeking. A good questioner competently seeks worthwhile information.

Let us now return to inquisitiveness. Good questioning is the defining feature of virtuous inquisitiveness and, as noted, it is this skill component that allows us to effectively cultivate inquisitiveness, and thereby to cultivate virtuous curiosity. This is because, in contrast to virtues, skills are more commonly and explicitly trained and taught in schools and workplaces, using a range of tried and tested pedagogical techniques, according to the specific skill in question. We know how to teach young children to read, write, and multiply, how to teach a teenager to code, and how to train a new employee to use the in-house company software. Most of us will continue to learn new skills, formally or informally, throughout our lives. The development of skills, then, is a familiar process for both teachers and learners.

Like other skills, good questioning can be taught and doing so has many potential benefits including the cultivation of virtuous inquisitiveness (Watson 2016; 2018a; 2019). Teaching or training good questioning may involve focusing on one of its individual components – content, context, or communication – or on the practice as a whole. In the former case, for example, one may draw on resources designed to help students distinguish between reliable and unreliable online sources, and so direct the contextual 'who' of their questions.



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Alternatively, one may focus on developing thought-provoking instructional materials on useful or important topics and so provide a valuable baseline for the 'what', or content, of students' or employees' questions. Many other similarly targeted strategies exist. Similarly, strategies exist for teaching or training the skill of good questioning directly, including techniques such as 'question-storming', question-based assessment, and the *Right Question Institute's* Question Formulation Technique.[8] However one approaches the task, given its defining role in the exercise of virtuous inquisitiveness, teaching or training the skill of good questioning is a promising means of cultivating virtuous curiosity.

That is not to say that one can guarantee curiosity in those who learn how to question well. Good questioning does not necessarily translate to intellectually virtuous inquiry because, as a skill, it may remain dormant or underutilised. To achieve the cultivation of a virtue such as curiosity, one must also foster the characteristic motivation common to all the intellectual virtues - the aim of cognitive contact with reality. Doing so is a challenge in its own right. That said, much like curiosity, good questioning is arguably foundational to success in many aspects of our cognitive and intellectual lives. As such, teaching or training in the skill of good questioning may well have a wide-ranging and significant impact on intellectual conduct and motivation more generally.[9]

Moreover, as with curiosity, the skill of good questioning has a distinctive role to play in the Information Age. In particular, as several of the examples above indicate, the arrival of the search engine within the infrastructure of the Internet has placed specific emphasis on the ability to ask questions. We must be able to ask the right thing, of the right sources, in the right way, in order to ensure that the results we receive from search-based algorithms are those that we need and want. A task that is made only more demanding by the existence of paid advertising and search engine optimisation (SEO) strategies that can and do fundamentally alter the information that we are most likely to see when we search (whether we want that information or not). It is not simply curiosity, then, but inquisitiveness that is required in order to effectively navigate the Internet through the use of search engines. Good questioning in the form of virtuous inquisitiveness allows us to seek out the worthwhile information that we need or want and avoid the potential information overload afforded by an

[8] A list of these resources and others can be found on my website at www.philosophyofquestions.com/resources

[9] A rich topic for further theoretical and empirical work.



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otherwise overwhelming and disordered repository of information, knowledge, opinion and, yes, cat videos. In order to cultivate virtuous curiosity in this information-centric world, we should teach and train the skill of good questioning.

## 5. Failing to cultivate virtuous curiosity

I have presented the case in support of cultivating virtuous curiosity primarily on the basis of the numerous benefits that I believe are afforded by doing so. In this final section, I outline some of the potential risks of failing to cultivate virtuous curiosity (and good questioning), particularly in relation to the design and use of the novel technologies of the twenty-first century. If left unchecked, vicious forms of technologically-induced and mediated curiosity can easily emerge, with broad implications for society as a whole.

We are all users of technology of one form or another, including many of the novel technologies of the twenty-first century. Many of us rely on these technologies for everything from buying food and navigating, to connecting with friends and following the news. The Internet, in particular, is increasingly omnipresent in our lives and, as already noted, search engines are the key to making it work in a structured way. I have suggested that reliance on search engines places an emphasis on our ability to ask good questions in order to get the information that we need and want. Simply put, the ability to competently seek out worthwhile information has a significant impact on what we see and what we do not see online. Ultimately, this determines much of what we come to know and believe on the basis of our online searching.

Arguably, however, rather than promoting the skill of good questioning, search engines are actually deskilling us in this regard. This is because they seek to predict, as far as possible, the information that a user wants from as little input as possible. The algorithms are, in essence, working to predict what we want to know before we have attempted to properly articulate it. Even the literal forming of our questions has become redundant online – how often do you type a full interrogative sentence into a search engine, as opposed to a string of syntactically disconnected search terms. We are thus not given opportunities to practice and refine the skill of good questioning online and are actively dis-incentivised from trying.

Yet, an *inability* to ask good questions can put one at a significant epistemic and practical disadvantage. It can both prevent a user from accessing the information they need and expose them to irrelevant or



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harmful information or misinformation. Consequences include everything from the user experiencing a slight inconvenience to the emergence of radical polarisation and extremism in society at large (depending, of course, on many additional factors). Whatever the particular effects, the general point is not hard to appreciate: the more extensively we (collectively) rely on information technologies, such as the Internet, the more widespread and intractable the consequences of an inability to navigate it will be. The deskilling of our ability to question online is thus a significant cause for concern in this regard.

Furthermore, even without this active deskilling, the profit-driven structure of large portions of the Internet poses a threat to the epistemic community at large. Online attention is a resource that advertisers and social media platforms, among others, must mine in order to survive. Search engine results are one of the most effective ways of doing this, directing the user's attention to this or that information in ever subtler and more sophisticated ways. There is, therefore, big business in modifying search engine results through SEO and paid advertising. Crucially, however, these approaches are not typically governed by exclusively (or remotely) epistemic ends. Rather, they are governed by profit. Thus, mere reliance on search engine algorithms cannot guarantee a valuable set of results.

Users who do not engage in good questioning when searching online are therefore liable to, at best, waste time and effort wading through unhelpful search results and, at worst, be once again exposed to false or misleading information. When the latter is sufficiently widespread, the consequences can be significant and harmful, as noted above. That is not to say that the good questioner can avoid the risks altogether, but without this skill, the user is more vulnerable.

Similarly, the user who cannot or does not exercise virtuous curiosity online risks falling foul of active efforts to direct their cognitive life in the form of, for example, recommendation algorithms like those of YouTube or Netflix. Such algorithms seek to guide the user's choices concerning what content to consume, often in the form of videos, images, and memes. Once again, the user's ability to make autonomous judgements about this content is diminished and actively dis-incentivised by such algorithms. But it is precisely this discernment of worthwhile epistemic goods that is required for virtuous curiosity. Without this, we are all at risk of failing to exercise due caution with respect to the content we are exposed to, resulting at best, in too many hours spent watching cat videos, and at worst, phenomena such as 'doom-scrolling', where users addictively consume a



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seemingly never-ending cycle of bad news stories online. Both good questioning and curiosity can provide an antidote to these distinctive concerns.

We live in a challenging world. I have argued in this paper that the intellectual virtue of curiosity, alongside virtuous inquisitiveness and the skill of good questioning, have a number of important features that render them valuable characterological resources in light of the complex and immediate concerns of the twenty-first century, many of which have been brought about by significant and rapid technological progress. Thus, we should seek to cultivate virtuous curiosity and teach the skill of good questioning to those of us (in principle, all of us) who use and rely on technology in our work and lives. This is one valuable characterological strategy for tackling some of the most distinctive and pressing challenges we face.[10]

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