Tomorrow’s learning: the place of information, knowledge and wisdom

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Introduction

Today’s world frequently reminds us in small ways of what a complicated place it is. Recently, I was in Singapore for a couple of conferences. My wife came along, and we shopped in a local supermarket to provision the kitchen of our short-term rental apartment. The supermarket had an exotic fruits section, featuring, among others, esoteric fruits from my home country America! There is no doubt about it: today’s world is a maze of coming and going, shipping and receiving, investigating and applying, and discovering and challenging. Inevitably, this makes education something of a maze too, and particularly so for today’s typical last phase of education, university.

Let us remind ourselves for a moment about some of the factors. Digital devices put an astounding quantity of information at our fingertips. Both telecommunications and cheap quick transportation bind the world together and enable a global economy. Competition no longer spans just the immediate geographic region but in many cases the world, including competition for jobs, with international travel easy and off-shoring commonplace. According to research by Murnane and Levy [1,2], among others, thriving in today’s job market requires relatively high-end skills compared with previous eras. People need to become nimble communicators, collaborators and problem solvers.

Wagner [3], examining what he terms the global achievement gap, that is students around the world who are underprepared for functioning in complex modern societies, urges attention to areas such as critical thinking, entrepreneurship, analysis of information and imagination. Gardner [4] characterizes five ‘minds’ that urgently need development: disciplined, synthesizing, creative, respectful and ethical. A number of years ago, Eraut [5] critiqued professional education across multiple fields for the thin preparation it offers for effective professional functioning, and the situation does not appear to be much better today. Moreover, extensions in the human lifespan most likely will revise radically our conception of the trajectory of education. When many people live for 120 or 150 years, and undertake multiple careers, it will make little sense to consider one’s formal education wrapped up during the first quarter century of one’s life.

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All these factors pose substantial and exciting challenges for our conception of university. How can advanced education prepare learners to engage in meaningful, comfortable and creative lives in the world of today and tomorrow, and to become continuous learners in that world? Summing up this thread in a single question: To what qualities of knowing should advanced education aspire?

Of course there are many ways of addressing this question, but a trio of concepts long in the mix of discourse about advanced education proves remarkably suggestive: information–knowledge–wisdom. The general idea is simple enough: it’s good to have information, for instance information about where those exotic fruits came from. It’s even better to have knowledge, something broader, more integrated, more centred on understanding, for instance, how those exotic fruits might have travelled to Singapore and what economic forces figured. Even better would be wisdom, perhaps wisdom about the ultimate implications, sustainability and worth of transporting fruits halfway around the world. Universities, whatever expertise they impart, whatever perspectives they cultivate, should aspire not just to impart information but knowledge, and perhaps not just knowledge but even a measure of wisdom.

All the chapters in this volume reflect a collegial effort to explore the significance of information–knowledge–wisdom (let me call it IKW for short) to university education. It’s my role to provide a broad perspective on this trio, sketching in a bit of the background and offering a birds-eye analysis of its character and promise. I’ll attempt a journey through several themes: the definition of IKW, the meaning of IKW, the significance of IKW and the learning science of IKW. But before any of that, let me share another story, one that illustrates the sort of knowing we might most cherish.

A story of IKW

This is something of a favourite tale. I’ve written about it before [6] and can’t resist another round because it fits so well. I often talk with educators about teaching for understanding, and part of that is asking: “What is something that you understand really well?” The query gives everyone an opportunity to ponder their own best understandings and how they developed. I was speaking to just such a group several years ago when somebody in the back of the room raised his hand and announced, “Ohm’s law.”

I was certainly surprised. Usually people mention something like Spanish, gardening or raising children, or less technical academic themes such as the French Revolution or basic algebra. Not Ohm’s law. Most of us have encountered Ohm’s law only once or twice, probably in some chapter of an elementary physics book. It’s a basic law about the behaviour of electrical circuits, which says that I=E/R (where I, the current in a circuit equals E, the voltage imposed on the circuit, divided by R, the resistance). Adding a few tricks, Ohm’s law can be used to analyse circuits with complex branches. So I had to ask, “How do you know you understand Ohm’s law so well?”

The gentleman explained, “I first encountered Ohm’s law, like most people, in a high-school science class. Then I ran across it again in university.”
I thought it was kind of interesting and also my roommate tipped me off that it, or something like it, applied to other systems besides electrical systems. For instance, the flow of hot air in ducts. Years later, I was having some trouble with my home heating system. I thought about the organization of the duct work from the perspective of Ohm’s law, and that helped me redesign the routing of the ducts, and now my home is more comfortable. And that’s why I say I understand Ohm’s law really well.”

I was impressed. This was a level of understanding a step beyond conventional academic requirements. It showed a nimble proactive perspective on the usual ritualized formula. Now imagine a university education that routinely achieved something like this for sizable portions of its curriculum. What an accomplishment that would be! So bearing this aspiration in mind, let’s return to the question of IKW and what this trio might teach us.

The definition of IKW

Our academic instincts tell us that definition is important. The distinctions between information, knowledge and wisdom should be sharply drawn in order for IKW to provide an educational vision. Here comes the principal bad news of this analysis: nothing could be further from the case. However, the good news, as discussed below, is that the definitional shortfall may not matter that much after all.

A puzzle from the outset is that IKW is only one of several variations that surface from time-to-time. Data might occupy a place before information. Understanding might sit between knowledge and wisdom. Beyond wisdom, one might even propose the transcendent sparkle of enlightenment. If we put all these together, we can construct a ladder with twice as many rungs, data–information–knowledge–understanding–wisdom–enlightenment, and of course there are several variants in between, say, data–knowledge–understanding–wisdom.

The cornucopia raises the question of which version is right. If we were searching for chemical elements, ‘right’ might be taken to ask which version ‘cuts nature at its joints’. But with IKW and its kin, whether there are any joints well-formed enough to be cut can be questioned.

A Wikipedia article on the data–information–knowledge–wisdom version offers a useful history of the discussion, as well as revealing a dismaying tangle of perspectives on what these categories might mean [7]. For instance, information can be considered knowledge of a sort, that is knowledge in the form of description. Or knowledge can be conceptualized as processed, organized or structured information. Or it can be understood to include a range of more ephemeral less objectified aspects beyond data, such as experiences, values, expert insight and grounded intuition.

If this seems messy, it is! Similar contrastive conundrums arise for any two adjacent rungs on any version of this conceptual ladder. Natural language categories make up all the rungs, their terms anchored in diverse contemporary usage. Little suggests that such common nomenclature will submit to rigorous definition.
Perhaps more traction would come from defining the terms one-by-one and worrying about the contrasts later. Consider ‘knowledge’, for example. One venerable characterization goes back to Plato: knowledge as ‘justified true belief’ [8]. Such a definition touches some important points. If you say you know that I=E/R, for instance, presumably you believe it. Moreover, you feel your belief is justified, at least by hearsay (no one suggests that what we legitimately ‘know’ always has to be known first-hand). Finally, belief and justification aren’t enough; Ohm’s law has to hold true. For instance, we would not say that believers in Aristotelian physics ‘knew’ that objects in motion spontaneously slow down. They believed it and felt justified in their belief by common observation, but they were wrong. They would say they knew it, but we would say they only thought they knew it.

So far, so good. Unfortunately the conception of knowledge as justified true belief does not work quite as well as it seems to at first. It might constitute a necessary condition for knowledge, but not a sufficient condition, as the philosopher Edmund Gettier argued in a well-known 1963 article, triggering a contemporary and continuing debate [9]. Gettier showed that there are cases of justified true belief we would be reluctant to call knowledge. In certain odd circumstances, Alan might believe X with ample justification, but the justification that happens to be misleading in this instance; yet, undoing the mischief, X might happen to hold true for other reasons. For instance, Alan might believe that Bob robbed the bank, having very clearly seen a person who looked just like Bob do so. Unknown to Alan but known to us, Bob happens to have a twin brother. However, in fact Bob himself did rob the bank. Under such circumstances we would not want to say that Alan knows that Bob robbed the bank, even though Bob did and Alan is justified in believing so.

In any case, such analyses only deal with propositional knowledge, knowing that such-and-such is true. Learning in university, and elsewhere, plainly has to encompass much more, including the knowledge of acquaintance, such as with being deeply familiar with the layout of one’s home town or an academic field. It would also need to include know-how, the sort of knowledge we commonly have about driving an automobile, riding a bicycle, conducting an investigation or writing an article in a discipline [10]. Then there is the related problem of tacit knowledge, which figures importantly in expertise, as well as everyday knowing [11,12]. As such forms of knowledge are not for the most part made of propositions, one can’t even begin to apply the ‘justified true belief’ approach to them.

If efforts to define knowledge lead into interesting, but complicated and contested terrain, the same could certainly be said for wisdom. One conception of wisdom, coming out of Paul Baltes and the Max Planck Institute for Human Development, views wisdom as expertise in the fundamental pragmatics of life and as a ‘metaheuristic’ for organizing our most insightful and humane thinking [13,14]. A wise judgment should reflect insight into human nature, justice, appropriate expediency and so on. That sounds reasonable. The ‘balance’ conception of wisdom from Robert Sternberg [15] emphasizes the capacity to make complex judgments about the common good reflecting explicit and tacit knowledge, judgments that balance a wide range of potentially conflicting short- and long-term factors. That sounds reasonable also.
So do other perspectives. Claxton [16] elucidates *wise action*, setting wisdom aside as too elusive a personal quality. He also dodges an aggressive definitional campaign, instead underscoring several characteristics of wise action, such as dealing generally with complicated and especially interpersonal human affairs, contrasting with actions that are merely cunning, expedient or intelligent, and manifesting selflessness, compassion, empathy and good timing in order to make a difference. In a recent penetrating dissertation on wisdom, Rowson [17] argues that wise actions and judgments depend particularly on freedom from a variety of delusions of the self, which prevent us from seeing clearly, noting that this is hardly a new notion as it has been part of the Buddhist tradition, among others, for millennia.

To generalize, different views of wisdom display a notable kinship, but they tend not to foreground quite the same characteristics, as indeed with views of knowledge or information. In the end, we have to ask how hard to push the definitional mission in the service of IKW. On the positive side, certainly rough definitions and contrasts serve to deepen our sense of information, knowledge and wisdom. On the negative side, efforts to draw precise boundaries leave us wandering in a conceptual jungle with no obvious way out.

**The meaning of IKW**

Instead of letting definitional shortfalls declare IKW a ‘false trinity’, perhaps we should question the place of rigorous definition in making the most of IKW. Meaning involves considerably more than definition, particularly the crisp categorical definitions characteristic of philosophy, mathematics or taxonomics. In front of me right now I have a picture of . . . well, you might call it a chair, but then again you might not. From the seat down it looks entirely like a chair, but it doesn’t have much of a back. If it had no back at all, I would call it a stool for sure. However, it includes a gesture toward a back, a kind of flange rising a few inches at the rear to offer some support for the sitter.

So: Chair? Stool? I hardly know what to call it. And yet, I know just what it is. It’s part-way in between, very clearly so, a hybrid, a *chair–stool* one might say. Where naming poses a puzzle, making sense may not.

Wittgenstein [18] emphasized how some sprawling concepts maintained coherence through a kind of family resemblance. Rosch [19] demonstrated how many everyday concepts were best understood as anchored by prototypical instances and images rather than delimited by necessary and sufficient conditions. ‘Chair’ is a classic example. It’s notoriously difficult to define ‘chair’ crisply enough to include all of what we might normally call chairs and none of what we do not. Like Rosch, this happens because our minds do not operate through categorical definitions so much as prototypes. We harbour a kind of ideal image of a chair, or perhaps several images for different kinds of chairs – family resemblance again. Something counts as a chair to the extent that it matches well enough one of our prototypes. The sense we make of the things around us depends not just on categorizing everything definitively but also on recognizing departures from our prototypes, discerning in-betweenness with great precision.
All of this applies nicely to IKW. Information, knowledge and wisdom as concepts certainly have fuzzy boundaries, but each has central cases that we would recognize as prototypical. What’s in a phone book? Plainly information. What about your sense of how to find your way around in your home town or solve algebraic equations? Plainly knowledge. The judgments and practices of figures like Gandhi? In many respects at least, wisdom. That the boundaries are fuzzy is not so much of a problem once we recognize our superb sense of in-betweenness.

By way of illustration, consider again grasping Ohm’s law in a way that helps you redesign your home heating system. Such an understanding certainly shows more than information, which might only include the ability to recite the formula. Arguably it shows more than knowledge too, at least in the narrow sense of knowledge, because it steps beyond usual textbook applications. However, calling such a specific technical matter wisdom seems far too strong. Perhaps something like knowledge on the way to wisdom would be apt. Yes, this is in-between, but in-between is a big part of meaning.

The significance of IKW

Working through questions of definition and meaning let us return to the significance of IKW for university with more confidence. The key question was: To what qualities of knowing should advanced education aspire? Plainly IKW helps with this question because it sets forth in a meaningful way a continuum of qualities of knowing: having information is one kind of knowing, and an important one, but knowledge involves added value of depth, breadth and coherence, and wisdom brings a blend of flexible insight, pragmatics, humane values and sensitivity to the human condition. Accordingly, there our universities should aim.

This seems all the more so in our digital age, with computers, netbooks and cell phones putting vast ensembles of information at our fingertips. In minutes, one can compile some basics about interpreting Elizabethan poetry, examining Devonian fossils or diagnosing symptoms of arteriosclerosis. As many have pointed out, today the informational challenge has become not so much gaining access as filtering and vetting. In such a milieu, delivery of information becomes a decisively lesser priority for university in favour of what to make of the information, which is where knowledge and wisdom come in. However, there is reason for hesitation here. Aiming at wisdom is one thing, but expecting to get there is something else. Most mature, experienced and intelligent adults do not achieve what we would comfortably call wisdom. Any of us might ask: “How many truly wise people do I know?” If you are like me, not very many. Moreover, when we feel ready to call a friend or colleague wise, most of the time we count him or her as wise about this or that, not comprehensively wise. Wisdom is probably too grand an aspiration for mostly young and relatively inexperienced college students.

Such a conclusion aligns well with the examination of wisdom by Claxton mentioned above [16]. Claxton argues that educating directly for wisdom is not a tractable agenda. What’s approachable is not so much wisdom itself as dispositions that look toward wisdom. Claxton provisionally identifies several, a blend of interestedness (in others, human affairs) and disinterestedness (from
obsessions with the self), empathy, perspective taking, well-timed decisiveness and courage.

Here, in-betweenness proves valuable again. To set our sites on wisdom need not mean that we expect or need to get there. IKW is perhaps more important for pointing a direction than demanding a destination. Recall the flexible understanding of Ohm’s law that amounts to knowledge on the way to wisdom. That ‘on the way’ quality seems like something educators could generally attempt in university and indeed often before.

One apt term for that ‘on the way’ quality might be understandings of wide scope \[6,20\]. For a brief characterization, an understanding of wide scope is:

- Central to its home discipline or disciplines
- Illuminating beyond those disciplines
- Used proactively to make sense of the world

Many concepts encountered by university and indeed pre-university students have the potential to function as understandings of wide scope, for instance, opportunity cost or discounted present value from economics, ecological systems or the dynamics of epidemics from biology, the diverse character of revolutions or the spread of technologies from history... well, it’s easy to extend such a list almost indefinitely. All of these concepts have broad significance for the lives people are likely to live.

The challenge, of course, lies in actualizing the potential. Intellectual knowledge of, say, opportunity cost is one thing; solve the problems at the end of the chapter, ace the test, even write an intelligent essay. Proactive deployment of opportunity cost and its kin in diverse circumstances is something else again, something not so readily attained in the normal course of education.

One more idea in the same spirit may help: what we find in the Ohm’s law story is not so much conventional expertise as flexible expertise, or, to introduce a play on words, flexpertise. It’s an understanding notable for nimble and wide-ranging use. Expertise is a traditional and important target of university education, but expertise can easily veer toward over-specialization. Perhaps our universities should educate not just for expertise but for flexpertise, a more restless and rangy quality of knowing.

**The learning science of IKW**

If knowledge on the way to wisdom makes a more reasonable agenda for university than full-scale wisdom, the question as to what we know about advancing that agenda remains. Hearteningly, learning science tells us a good deal. In this short space, it makes most sense simply to touch on a few lines of inquiry that particularly speak to fostering deep understanding and broad transfer of learning.

**Stances toward knowledge in the college years**

Perhaps the best known line of inquiry in this area began with William Perry \[21\] who noted that college students displayed very different stances toward
knowledge and a pattern of development toward more sophisticated views. At the relatively unsophisticated end of the scale were attitudes toward knowledge as an established canon blessed by authority and to be learned uncritically. Of course, some things were not yet known, but they would be discovered in due course. At the sophisticated end of the spectrum, some students viewed knowledge as often uncertain, subject to revision, fraught with ambiguity, but calling for provisional commitment to move forward. An apt general mission for the college years was to move students toward the more nuanced view of knowledge.

Deep, surface and strategic learning styles
Scholars have studied different mindsets of university students not only toward knowledge, but toward learning. Säljö [22] documented a sequence of mindsets, anchored at one end by a simplistic stance that learning involved the acquisition, reproduction and application of factual information. This contrasted with more enlightened stances, such as understanding the meaning for oneself and seeing things in different ways.

Further work on learning styles foregrounded a contrast between surface, deep and strategic approaches to university study [23,24]. A surface style emphasizes learning the facts and routines well enough to achieve adequate grades. It often appears to reflect a fear of failure. A deep style eschews such shortcuts and persistently seeks understanding, valuing it for itself. Later work revealed a strategic approach, adopting surface or deep characteristics according to the circumstances, with good grades and good self-management in mind [25]. Students show stylistic preferences, but also echo the expectations projected by the instructor and the formal demands imposed by a course. Thus students are by no means locked into the styles they lean toward, and university instruction can do much to nudge them toward the deep style.

Understanding as performative
In the Ohm’s law story, why was the fellow so sure he understood Ohm’s law well? Because of what he could do with what he knew. His confidence points to a view of understanding that has proven helpful in a range of settings of teaching and learning, a performative conception of understanding. As developed a number of years ago by several colleagues and myself, the performative conception says simply that understanding something is a matter of being able to think and act flexibly with what you know about it [26–28]. The ‘something’ could be Ohm’s law, Newton’s laws, the law of supply and demand, the laws of harmony in music or the ancient legal code of Hammurabi; the performative conception serves nicely across disciplines and beyond, as well as from pre-kindergarten through university. When people can think and act flexibly with what they know, we readily credit them with understanding. When people cannot, even when they can recite facts or execute standard routines, we do not.

With this performative perspective comes a broad framework for organizing instruction. The four critical elements of the framework are:

• Generative topics (organize learning around topics that figure centrally in their disciplines, engage teachers and learners, offer wide applicability)
• Understanding goals (the short list of important things to understand about a topic)
• Understanding performances (what the learners will do early and later to build and demonstrate their growing understanding)
• Ongoing assessment (modes of formative assessment that operate frequently and provide rich information to learners and teachers alike about progress).

This framework has seen extensive use at all levels, with WIDE World, an online teacher and educational leader development initiative from the Harvard Graduate School of Education, helping to disseminate it [29,30].

Teaching and learning for transfer
Transfer of learning refers to learners acquiring information, knowledge, or even wisdom in one context, for instance coursework, and activating and applying it in others, for instance in another course, a professional setting or a non-standard problem (as with Ohm’s law for heating systems). Most instruction treats transfer as a fairly automatic consequence of conventionally good academic instruction, the sort of instruction that leads to high performance in exams and term papers.

Unfortunately, a sizable body of research beginning with Thorndike [31,32] early in the 20th Century demonstrates that conventionally good instruction commonly does not produce the transfer one would like to see [33–35]. Skill with textbook problems often leaves learners oblivious to real-world situations that invite applying what’s been learned. Adroit analysis demonstrated in an essay often does not translate to revised conduct in realistic circumstances. Techniques supposedly acquired in one context often need to be re-taught in another that frames them in a somewhat different way.

Some have argued that transfer, especially ‘far’ transfer (across stark differences of discipline and context) is a lost cause. However, the evidence suggests that transfer falters more because conventional patterns of learning do little to address its challenges. Processes of teaching and learning that emphasize reflective abstraction, pose diverse and realistic problems, and engage students in exploratory inquiry as part of the learning process yield considerably more transfer [36,37].

The dispositional side of knowing
Conceptions of knowing within the university tend to be overwhelmingly abilities-centric. From simply being well-informed to understanding deeply, such qualities are seen as capabilities, matters of what people have become able to do, such as deliver information on cue or produce an impressive analytical essay on demand. Indeed, educational institutions tend to foreground a culture of demand, pressing for various well-defined performances and gauging students’ progress on their capacity to deliver [6,38].

All this is reasonable up to a point. However, the flexible use of knowledge in realistic professional and personal settings depends on alertness and attitude as much as ability. To apply Ohm’s law to your home heating system, or recognize the manipulative distortions of a political speaker, especially one from your own favoured party, you have to notice how what you know applies and think it
worth the trouble to engage the situation from that standpoint. This amounts to a dispositional view of transfer rather than the customary cognitive view. Typical instruction does little to cultivate knowing as a dispositional enterprise [6].

**Threshold concepts**

Several years ago, Jan Meyer and Ray Land [39,40] introduced the notion of ‘threshold concepts’ as a perspective on university learning. Threshold concepts are concepts, conceptions, epistemic styles characteristic of different disciplines and, more broadly, ways of thinking and practising that have a threshold-like character. Threshold concepts function like portals. When students develop a good understanding of a threshold concept, they gain access to a new integrative vision of the discipline that enables broader understanding and further learning. Examples offered by Meyer and Land include *opportunity cost* from economics, *limits* from mathematics, and *signification* from cultural and literary studies.

Numerous university instructors representing just about every discipline have found this approach attractive and conducted formal and informal experiments to explore what it offers, gathering in conferences and contributing by this point to three books of collected articles [41–43].

**Tacit knowledge and unlearning**

It’s long been recognized that a large part of technical expertise, as well as everyday competence, is tacit [11]. Although tacit knowledge enables fluent thought and action, it also poses challenges for instruction, as often the very expertise university instructors possess in their disciplines leaves them not knowing explicitly what they know. The common result is instruction poorly calibrated to students’ needs.

Moreover, many chronic misunderstandings of students appear to reflect their own naïve tacit conceptions. Clark [12] argues accordingly that considerable learning requires *unlearning*, marshalling any of several mechanisms that help to dismantle interfering tacit knowledge in favour of new views and behaviours.

The several themes outlined above offer only a sample of the rich literature that speaks to the challenges of knowledge on the way to wisdom. Many of these ideas, as well as others, receive a rich treatment in a recent synthesis by Noel Entwistle, a scholar who has dedicated his professional career to university learning, in his *Teaching for Understanding at University* [44]. Some may also wish to look at *Making Learning Whole*, a recent effort of my own to offer an integrative perspective on learning, not focusing specifically on university but broadly applicable [20].

**Tomorrow, yesterday and today**

We began with a question about tomorrow: To what qualities of knowing should advanced education aspire? The mission was to address this question through the familiar information–knowledge–wisdom triad, with the help of the Ohm’s law example. Our first step was to look at definitions, asking whether IKW offered a neat categorical account of various qualities of knowing. Provisional definitions proved useful in developing a better sense of IKW but futile in drawing sharp boundaries.
The next step was to suggest that, despite definitional shortfalls, the meaning of IKW could be located in acts of classification that placed some examples squarely as instances of information, knowledge or wisdom, and others clearly in-between. Allowing shades of discernment, such acts of classification within IKW, reflected the way people generally use everyday terms.

This point cleared the way to recognize the significance of IKW for qualities of knowing. IKW serves nicely as a compass needle, pointing in an ambitious direction and recommending processes of teaching and learning at university level (and often before) that aim not just to impart information and foster knowledge but nourish wisdom. The quest becomes all the more important in our digital era, with information not only readily but often overwhelmingly available, and filtering and making meaningful use of it a constant and vexing challenge.

However, wisdom seemed too rare and esoteric a target, especially for university students at the beginnings of their long lives. It made more sense to foster dispositions important to wisdom and cultivate knowledge on the way to wisdom. It made more sense to aim at understandings of wide scope for one way of framing the agenda, or flexpertise for another. A number of ideas from learning science can inform the practice of educating for knowledge on the way to wisdom.

With all that said, we need to acknowledge that such visions are not new to university education, nor indeed to education more generally. The hunger for broad and deep understanding, for vigorous knowledge that speaks not just to the tests people take but the lives people live, is ancient. Even as we keep one eye on tomorrow, we need to keep the other on yesterday. As we plan for the future, we do well to ponder why such oft-recognized ambitions have not been achieved long since.

Indeed, discussions of IKW often cite, and I will cite here, cautionary words from one of the great poets of the English language, T.S. Eliot, who wrote in Choruses from "The Rock":

"Where is the Life we have lost in living?  
Where is the wisdom we have lost in knowledge?  
Where is the knowledge we have lost in information?" ([45], p 96)

That verb lost is unnerving. Losing something is generally much easier than finding it. Eliot’s lines remind us of the oceanic volume of information in ratio to that of knowledge, and knowledge in turn to that of wisdom, and sharpen our sense of the marvellous and precarious distillation involved. As much of the best learning appears to involve unlearning, so perhaps much of the best learning needs to involve unloosing, a quest daunting and inspiring at the same time, as perhaps any quest worth the name should be.

References

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