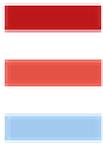
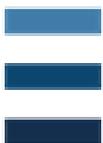


NEXT
LEVEL
CLIMATE
THINKING
AND
ACTION

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Episode Three

SYSTEMIC UNDERSTANDING

Introduction

Back to Durham

If we return to the riverside art in Durham one last time, it would be easy to imagine those trees as a children's recreational area. We would just need to add some ropes and maybe a slide and a swing; and those trees in the clearing would provide a secluded, safe area for young people to play around.

Scandinavian countries famously prioritise play in the early years of education. They are surely right to do so. The importance of play in child development is a well-established fact at many levels, both socially and academically. Indeed, the skills developed during play are fundamental to the role of the entrepreneur later in life. Any observation of young children playing in an open space quickly demonstrates many key entrepreneurial skills are mobilised: making connections, exploration through balancing risk and reward, understanding limits and creatively responding to them.

Turning specifically to 'green' education, having children learn about the planet in this tactile and creative way is surely the most optimal introduction to what it is all about. Exploring the details of the natural world without a bigger agenda brings a child into close contact with the wonderful variety and beauty of the planet. As the philosopher Rousseau understood¹, childhood play, relationships, connectivity, resilience and a love of nature are key first moves towards a happy and fulfilled adult life. Free play triggers so many important skills, and the adult version of these games will be considered in more detail in Chapters 5 and 6. However, for now our attention has been on the first pillar of the Climate Academy – systems understanding.

Play areas for small children have age notification boards outside them for a reason.

They are designed and built for younger children. They are *explicitly not for teenagers* who are too big and too burly. They don't fit inside the slides, they are too heavy for the ropes. Teenagers might be tempted to hang around in a childrens' play area to unwind a bit and talk – but they would naturally take an ironic distance from being in a place that is so obviously designed for much

¹ Rousseau's treatise on Education, «Emile » (1762) remains a foundational text of pedagogy. For a fuller exploration of his life, ideas and relevance see, "Rousseau Tackles Climate Change" (not yet published).

younger children. Gaming is still an important skill, but the context and the content has to grow up with them.

As noted at different points in these books, global educational standards on the environment rarely take older students beyond the most basic level of understanding. It would not be unfair to remark that we allow almost all of our young people to go into the world ecologically illiterate. (This would not normally be a major problem, but now the future stability of human civilization rests on it).

The Climate Academy invites older students to another level of things.

The Climate Academy plants students into a seat where everything is framed properly. This simple move opens up a much deeper game of understanding and action.

This frame challenges those students who have taken too casual a view of the problem, and it calms the nerves of those students who have become too alarmed.

Either way, this safe space, informed by the latest mainstream science, permits students to engage with the material with fresh energy: for those students who were distant, the climate crisis suddenly jumps into relevance; for those students who were too close to some details, a proper perspective is provided.

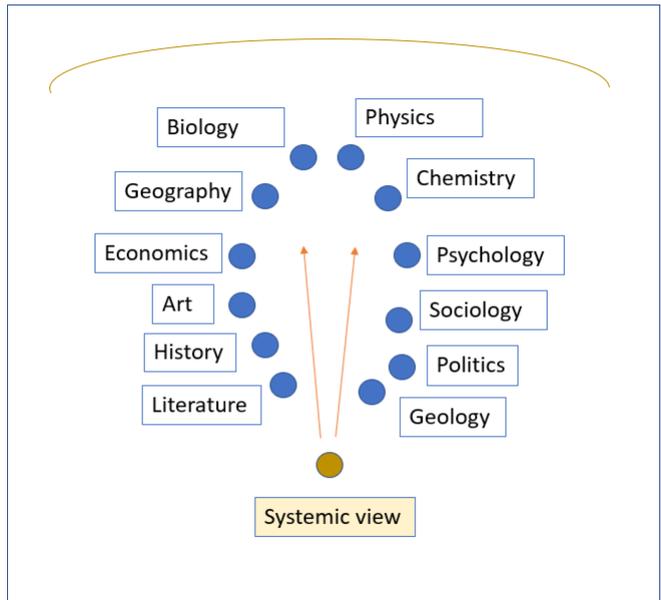
To be frank, the climate crisis is big and scary.

As teachers, we have a responsibility to provide young people with secure pedagogical place to understand it all. Throwing a few lessons at the crisis from a distance is not good enough.

The student textbook for the Academy provides a step by step guide to the science and clear pathway through the systemic social issues it raises. Without this frame, how is a student supposed to make sense of arcane and complex scientific papers? Without guidance, they will be lost in a confusing clutter of green ideas and analysis. Learning about sustainable development is not like learning about a traditional school subject like History, where there is a clear storyline that holds things together. In the absence of a frame that puts things in their proper perspective, our students are left vulnerable to fake news about the crisis, or over-anxious thoughts about what is actually happening.

The Climate Academy is dedicated to developing students with a clear cognitive map of the crisis – of both the scientific and social dimensions of the situation. At the simplest level, this happens through the division of chapters and their sequence – from the absolutely basic empirical details, through to higher vantage points of systems analysis. Establishing this clear space, and marking out the main boundaries enables the students to then dig deeper in areas that spike their interest, and it provides them with a secure base, from which they can explore further. This map also enables them to navigate their way around different statements by the press, their peers and their parents in an informed and more autonomous way.

Having a clear framing of the climate emergency also enables the students to assess where they can have the biggest impact in their efforts to leverage change. There are millions of students who



should understand the crisis, and there are millions who really want to understand the crisis. How can schools provide them with a clear and reliable view?

There is fantastic new play area to be discovered. And the starting point for that game is the acceptance that the crisis must be understood systemically.

Back to Plato

As noted in the previous chapters, Plato had lived through two traumatic events that shook his understanding of the world and how it works. He resolved to get to the bottom of things. His Academy was committed to a fully systemic understanding of his society. This was not just a dedication to analysing the full scope of all of human affairs, it was also a commitment to understanding *the way in which everything joined up*.

The students entering into Plato's Academy started by acquiring the essential cultural content that are familiar to modern schools: literature and art, and what we now call history and the sciences. Then, after mastering these subjects, they moved on to mathematics and geometry. This more abstract, reliable and stable level of study scrutinizes the invisible matrix that is in operation between all the dots and details of the other subjects.

Finally, Plato's students would move onto Philosophy. It was from the vantage point of Philosophy, that the students could look out onto to the world in all its complexity and detail with a 360° view. It was also the discipline that provided the tools for asking the systemic questions. The most rigorous analysis does not just examine things the details of the way things appear, it also digs deep to examine all the background assumptions that are operative in that view. It was an Academy that was dedicated to understanding the roots of things – singular, and rhizomatic.

It is in this double sense that the original Academy scrutinized the full system. Plato was one of the most complete thinkers in the history of thought. It must have been the most remarkable experience to have participated in an education at his university. If we scratch at that Latin word we find both the idea of the whole (universe) and inside that we find the oneness (uni). It was a place of reflection that not only offered the chance to dig into details, it was at the same time a place to hunt down the universal principles behind everything.

Perhaps the whole syllabus of the Academy could be summed up as a programme designed to take the students from understanding how the world seems to be, to understanding how it really is. Or more crisply, from opinion to knowledge, from illusion to reality, from the shadows to the light.

Main Text

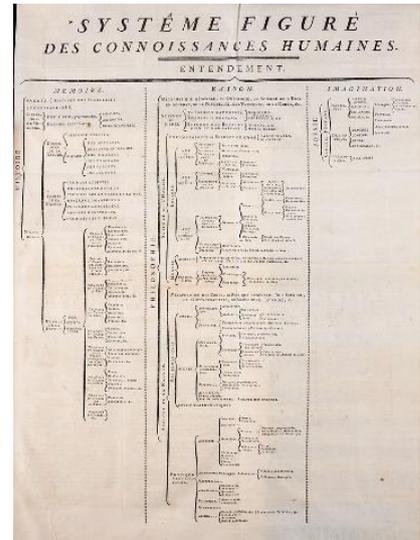
Systems thinking

1. The problem

There is a simple core truth about the state we are in.

The climate crisis is a *systemic* one, and it needs us to *think and act systemically* to fix it.

It is unsurprising to note that our modern educational system reflects the way in which knowledge has developed in history. Since the Renaissance and the Enlightenment we have built up a system of academic knowledge which is hard enough, and tough enough, to see through the old mystifications of the Medieval period. This clarification, this great act of sorting and sifting, tidying and testing, has led to a formidable range and depth of knowledge that Diderot (the godfather of Wikipedia) could hardly of dreamed of.



The original *‘Encyclopédie’* (published between 1751 and 1772) was wonderfully ambitious and extensive; in the end it had around 70,000 articles on everything from Jam to Justice and from Pythagoras to Peacocks². It might be reasonable to expect that this demystification and expansion of knowledge would lead to greater control over our world. It would seem to fair to anticipate that the success of making the world more transparent to reason, and our greater ability to grasp the mechanics of nature, would lead to an advance in our ability to manage and manipulate it all.

This increase in control has been undeniably true, perhaps best illustrated by the development and harnessing of atomic power.

However, a paradox kicks in. The advance of science has also carried with it a strange dark shadow. The proliferation of knowledge has taken us down so many complex rabbit holes of understanding, we have lost sight of the bigger picture. The deep specialization and atomisation our knowledge means that it is formidably difficult for any singular area of research to have a meaningful connection with another. At 18 years old, a student must decide where their special interests lie, and in order to be able to function effectively in that field they must acquire a level of knowledge or experience that takes them far beyond any level of common sense. And by definition, all other areas of expertise move too far out of reach for them.

This is true not just for individual students, it is true at a social level.

Indeed, it seems that the more we specialize, the more we lose our grip on the whole. We might have demystified all kinds of truths about the material world, but what we have created is another kind of fog.

² The entries on Pythagoras and Peacocks were originally censored.

We have atomized the world, and in so doing we have opened up a level of complexity and depth of influence that is extraordinarily difficult to manage. The flipside of going deep is a loss of perspective of the whole.

A jam

Just take a drone's view of a traffic jam. You have thousands of rational individuals, making a very reasonable decision to go home at the end of their specialized day of work. They sit going nowhere in machines that are designed and constructed with remarkable technological capacity. No individual driver is to blame. Indeed, they have worked hard to earn their position that affords them this car, and a share in the collective intelligence of that society. But there they all are, stuck in a jam in which that knowledge is rendered useless.

In fact, this traffic jam is not the first blockage that they have experienced on the way home. It happens nearly every day. And in a weird way, every time it happens the traffic jam somehow feels unlucky. In cities with chronic traffic problems, it is interesting to speculate just how bad the congestion would have to be before a genuinely deep response to the systemic question about transport would arise.

Of course, it is not a situation that can be solved by getting a specially trained policeman to blow a whistle, wave a flag and speed everything up. It cannot be solved by designing better cars. The problem is not naively optimistic drivers. The problem is that the transport system of any city, given the sheer size and complexity of the urban space, is profoundly difficult to organize. It is a systemic problem that requires skills of system thinking. The knots of it are tied with so many threads of economics and sociology, of politics and psychology, there is no way for any individual just simply cut through it (like Alexander the Great³).

And this is just one city. In 2022 there are * number of cars per person on average in Europe, compared to * number of cars per person in China and * in India. If these and other nations wanted to enjoy a similar level of car ownership, if they wanted to follow the same lines of industrial development that the Ultra High Developed economic nations of the world have trodden, then there simply would not be enough metals and minerals in the crust of the Earth to make them. Regardless of whether they are powered by battery or fuel.

Of course, the previous paragraph should not have used the conditional word, "if". These nations *are* pursuing the same lifestyle aspirations as the Ultra High Developed nations. Why wouldn't they? Or more pointedly, why shouldn't they? It would be deeply racist to raise an argument that they should stay in their place and leave the resources for the nations who have already exploited the Earth so extensively already.

So not only do we have deep problem at a local level with traffic jams – with individuals making perfectly rational choices to jump in a car, we also have a very sticky global problem where it is

³ In ancient Gordium (now in modern day Turkey), a simple peasant entered into the city riding an ox and unwittingly fulfilled a prophecy about the next King - who would be the next person to arrive on such a mode of transport. His ox was tied up in a place of honour with "several knots all so tightly entangled that it was impossible to see how they were fastened". A few years later, Alexander the Great would turn up, see the problematic rope and simply slice through it with his sword, thereby "cutting the Gordian knot".

simply impossible for everyone to pursue their own national interests in transportation. As James Bond understood, “The World is Not Enough”.⁴

This blind, profoundly unrealistic economic development can be exposed by just staring for long enough at a traffic jam. The truth is that this “March of Folly”⁵ of clearly unsustainable growth is being played out at so many levels of the system. Just as nations push their own private priorities forward in an atomized concern for their own interests, so do different governmental departments push their own agendas without reference to the whole. And so on, and so on.

What kind of educational system do we have? One that pushes our students into silos of specialized knowledge with no counter-balancing commitment to an understanding of the whole. What kind of educational system do we need? One that takes very seriously the loss of systemic vision that has built up over centuries of atomization.

2. A way forward

Even more importantly, we should also provide our students with systemic concepts. Or in other words, frameworks that organise knowledge in a way that illuminates what the essential issues are. Without these structures and frameworks, the students will carry their knowledge about like a school bag full of clutter, full of things forgotten, lost, outdated, .

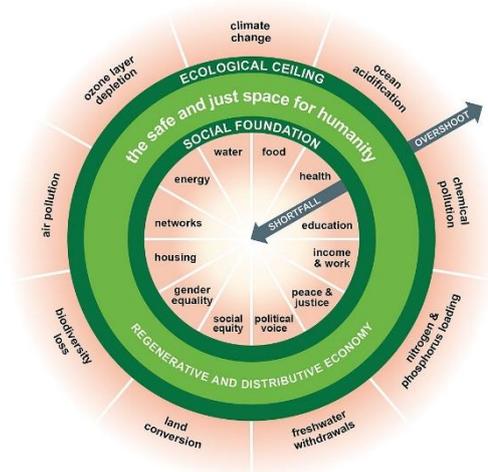
Here are 3 simple examples of systems thinking that can, with a simple concept, reframe the green content learnt by the students and give it much stronger grip:

a) A Doughnut

In 2017 Kate Ragworth put forward the concept of “Doughnut Economics”.

It is a powerful concept that frames the complex problems of sustainability with a wonderfully helpful image. It puts basic human rights at the centre, and defines the outer limits of material economic growth with boundaries defined by the latest scientific conclusions. It thereby helps define where we are falling short with human welfare, and where we are overshooting the capacity of the planet to bear our demands.

The concept is a simple but powerful tool that brings into focus what a safe and just society will look like. It has been widely celebrated and used.⁶ It makes clear



⁴ “The World is Not Enough” (1999), “James Bond is entrusted with the responsibility of protecting the daughter of an oil tycoon. While on his mission he learns about an even more dangerous plot”. (Wikipedia summary).

⁵ Barbara Tuchman’s “The March of Folly” is a brilliant historical survey of how regimes

⁶ However, it should be noted that there had been a major problem with the way this model has been implemented in the advanced Western cities that have taken it up, such as Amsterdam. They have defined the

something which is not intuitively obvious to a capitalist culture that is predicated on accelerating growth – namely, that there are limits to material economic growth⁷, and these should be the first principles of our economic thinking, not the last.

b) A fever

More simply, I have given so many lectures at universities in recent years about climate change, and the one metaphor that always seems to have the most traction is the metaphor of the baby with a raised temperature of 2°C (from Chapter One of the Student Guide). This is such a basic idea, but the fact that it has a big impact illuminates just how patchy our overall understanding of the crisis is; indeed, these students are all functioning at a very high academic level in both the sciences and arts.

As a starting point to thinking about climate change education, the image of fevered body offers so much more potential for development because it is rooted in systemic thinking. There are many lines of explanation and enquiry, qualification and questioning that be developed from this point - whilst keeping the full system in view. Having such a blind spot in our educational system should be deeply shocking, given the consequences of what such a lack of awareness leads to.

We need to develop an army of metaphors like this. Our students deserve a useful map to guide their learning and their actions.

c) An index

This third example is far more important and powerful than the other two, and so it has its own Chapter 7 in the Student textbook. In fact, this index is so fundamentally important, it is staggering that it is not known or widely used by the media to hold governments to account. Indeed, the core project of the Climate Academy is to bring this index into the global discourse of the climate emergency.

The CUTx Index provides a powerful tool to measure the systemic impact of any action or statement at this clear global scale. It is a wonderfully quick short-cut to a full understanding of our situation. It compresses all the latest scientific research and analysis into a simple table of national numbers. The index simply takes the remaining carbon budget as defined by the latest science and divides it per capita, and from there by nation.

The fact that such an index does not exist in the world for the greatest existential crisis we face is extremely illuminating. As soon as COVID-19 hit, dashboards sprung up everywhere, news channels kept a constantly close eye on the numbers. We have always had indexes for almost every layer of the economy. Therefore, the absence of a carbon budget tracker is shocking by its absence.

Take the case of Holland for example, despite the steps forward taken with waffles doughnuts in Amsterdam, they still need to reduce their emissions by 31% per year from now to avoid overstepping a 1.5C rise. And yet Holland is still considered by most casual observers to be a leading

size of their doughnut without proper consideration or what size doughnut is possible across the world on a fair per-capita basis.

⁷ “Limits to Growth” (1972), was a groundbreaking publication by Denis Meadows, Donella Meadows, Jørgen Randers & William W. Behrens III. It established the reputation of the Club of Rome as a leading voice in sustainability at a time when such thinking was considered to be very edgy – not in the sense of being cutting edge, but in the sense that it could not be viewed more marginal to human life.

green nation. Well, who could possibly argue with their 22.9 million bikes⁸ and a commitment to emissions free buses? The truth is that is basically impossible to either applaud or criticize if there is no standard science based measure to assess things with.

With the CUTx Index, the gap between the committed vocabulary of political leaders and their actual policy measures can be demonstrated. In the absence of a standardized index, rooted in the carbon budget, any statement with a big percentage can sound good. If young people started to use this tool, and demand its wider deployment in climate change discourse, it would radically sharpen up media coverage of the crisis.

In advance of Chapter 7 in the Student Guide it is important to underline two features of these numbers with respect to how they help us see where we are up to:

- They line up every nation in the world to the same equitable measure.
- Alongside every nation's emissions data, both the *trend* and the underlying *resource extraction* figures are published.

This clear vantage point makes informed assessment of the system possible.

Pedagogical advantages of systems thinking

1. Coherence

It is so much more stimulating and exciting to learn about the crisis when it fits into a coherent package. In every nation of the world, students only have the chance to learn about the crisis in scattered and fragmentary bits. At best, sustainable development is typically an after-thought in a cluster of already busy syllabi. At worst, it is not done at all, or just degraded to a few posters around school reminding everyone to “reuse, reduce, recycle”.

It cannot be left to chance that a young person enters adult life as a voter, consumer and citizen with an utterly superficial view of what is going on above their heads.

As it stands, across the world, many students graduate from school having heard the same basic blocks of content about climate change repeated a dozen times, as different subjects ‘do their duty’. There is not one national educational system that has done a proper audit about what elements of sustainable education are taught when, and at what depth. Not one national educational system has been brave or innovative enough to put students in the seat where a connected and coherent view of everything is pulled together. Schools today reflect our atomized society. We have deep social silos and deep academic silos. We desperately need to connect everything up, both at a social level and in terms of getting a clear academic view of the whole. We need deep coherence.

Given that we are in the middle of only the 6th mass extinction event in the 4.54bn (± 0.04) year history of the planet, can we really call the children in our schools educated if they do not have a clear view of it? Can any national government think it is doing a good job if this clear space to see the crisis is not provided?

It is true that we have millions of green initiatives, projects, plans, ideas and proposals. It is true that there are bits of climate education inside Geography, Biology and Ethics lessons. But where is the

⁸ <https://www.statista.com/statistics/819839/volume-of-bicycles-in-the-netherlands/>

clear view of how it all fits together? What do all these things add up to? Like in society, schools only offer an extremely confusing and cluttered space of various environmental dangers and proposals.

For the moment, for any student wanting a clear, informed view of the state we are in they would have to chase around these fragmentary bits like they would have to chase around the plastic litter in a windy school yard. Our society is flooded with millions of individual green actions, inspired by different particular details of the environmental problems. It is all maddeningly inefficient and ineffective.

We have a duty of care to bring them to a clear understanding that is truly *systemic*.

On countless occasions I have taught a few basic components of the student textbook to classes (sometimes just as a way of funking up a cover lesson that I have been dropped into), and each time caused a major reaction from the students – simply because they felt like they had understood the crisis for the first time. Fortunately, I did not need to sing or breakdance to achieve this result, it just required a few metaphors and key data or graphs to put them in the right seat to see it.

The wonderful advantage of *sustaining* a systems view of the crisis in a school is that once it is in place, all the diverse activities that the students can engage in suddenly have more gravity and grip because they are part of a whole. This coherence has two features: Firstly, it offers a clear gradient to the school's sustainable education programme. One in which the younger students are not overwhelmed, and the older students are not underwhelmed. Secondly, by framing everything with a reference at some point back to the Climate Academy and the CUTx Index, a clear frame of reference is established.

2. Interdisciplinary learning

A particular challenge of thinking through the crisis of the Anthropocene is that everything is so interlinked. Here are three hypothetical examples sketched out to highlight the interlocking nature of the challenge ahead.

A container ship leaving China is delivering a bulk purchase of laptops by a modern European school that imagines a paperless building is environmentally friendly. The massive CO₂ cost of mining, manufacturing, transporting, powering, and disposing or recycling of the device is not so evident when the children settle down to watch a vivid nature documentary in class a few weeks later. An exhausted worker sits in an isolated motorway service station, surrounded by cornfields that are sat in exhausted soils. Feeling drained from a day of marketing the sale of solar panels, she is about to bite into a burger that embodies quite a few particles of CH₄. And as a young activist enthusiastically jumps into an old car with his friends to get to a climate march, there is a trace of N₂O left behind hovering over the drive of his parents who don't approve of what he is doing.

It is a kaleidoscopic crisis.

Our students need help to see everything in its complexity and in its interconnectedness. And more importantly, they also need help to see the inner structures and patterns behind the myriad details. Our education systems were conceived in the 19th century, and like our typical governmental departments, we have atomized units of thought and action that have to be dragged to an interdisciplinary level... and then a transdisciplinary level of engagement and understanding will ultimately arise.

There are clearly benefits to specialisation and the ability to hold a deeply articulate grip on any subject matter. However, this drive to expertise can only be considered complete when it is accompanied by an humility and openness to the wider picture. Indeed, transdisciplinary knowledge of the system is a particular kind of expertise in itself – the problem is that it is so often only deployed as final thought, not as a first principle of any plans or projects.

At the moment there is such a dissonance between the vocabulary used by politicians to talk about the crisis, and the weight of the policies that they have committed to in response to that threat. UNEP celebrated its 50th anniversary in 2022 with great enthusiasm about its new policies on plastic waste. Regrettably, the relative importance of reductions in plastic waste and entire eco system collapse should not need to be spelled out to the United Nations Environmental Programme. Where is the clear minded systems analysis? Is it there but just suppressed, or have we just lost sight of the main plot lines?

The same critique could be offered of the United Nations Sustainable Development Goals – or SDGs for short. Who designed the list of 17? Why are they not structured into a coherent plan? In the absence of definitively effective Climate Action (13), Affordable and Clean Energy (7) and Sustainable Cities and Communities (11) any attempts to eliminate Poverty (1) Hunger (2) are surely doomed. The SDGs appear like a shopping list of good ideas, not a savvy actionable framework. In the end, the lack of robust system thinking has simply enabled nations and companies to put a few attractive sticky labels on their deeply unsustainable actions.

Likewise, in the build up to COP26 in Glasgow, the UK positioned itself as a global leader in sustainability. But that simply cannot be squared with the reality that they are opening new gas fields in the North Sea, a new coal mine in Wales and have transport policies to build x km of roads by **. Yet, in direct contradiction to these plans, the UK still needs to cut its emissions by 27% per year from now for a 1.5°C average temperature rise, and 8.1% per year to limit it to 2°C. Again, who is carrying out the systems analysis? Why is the media not holding the government to account?

If we could develop a proper interdisciplinary mode of thinking in our students, we would have a fighting chance of developing citizens and policy makers who could see the most important contours in the complex maps of facts, trends and projections. We urgently need clear mindedness at a transdisciplinary, systems level of thinking and action.

3. The recognition of boundaries

Our economic system has an edge. It is 40,075km wide⁹. We live in a Closed Mass System and it is surprisingly easy to forget this simple truth.¹⁰ This physical boundary to human life is the first line that must be drawn when we start to think about all the economic activity that we would like to achieve within it. Yet, because our predominantly capitalist culture has pimped the values of “freedom” and “choice” to such an extensive level, it can feel awkward to talk about limits.

Being bold about boundaries is important. Indeed, there is nothing inherently wrong about confronting limits at all. In fact, it is arguably one of the most important life skills that we develop.

⁹ This is the length of the equator, but geodesy (otherwise known as geodetics) informs us that the Earth is not a perfect sphere.

¹⁰ Chapter 3 on “Spaceship Earth” explores the implications of this boundary for resource extractions, and Chapter 7 on the “CUTx Index” explains the national boundaries that exist for emissions.

We don't take pity on Messi with a football and grant him extra space with a bigger football field – his genius is made possible by the small space that he has to play in. Likewise, Kasparov would never ask for more than 16 chess pieces, and Bach was able to produce sublime music with just the 12 tones of the harmonic scale. Amazing things can be achieved in a small space.

Perhaps you need to forgive this utterly trivial example, but as a young boy I lost a whole summer in 1985 inside my Cobra MK III spaceship travelling around the galaxy... I was a fighter pilot and trader inside the ZX Spectrum game 'Elite'. The two programming geniuses of David Braben and Ian Bell had invented an entire interactive 3D galaxy for young boys and girls to explore – all within 32k of memory.

Today, 32k is about the size of one fuzzy jpeg picture.

The tight situation we are confronted with the climate crisis is neither a trivial nor an artistic challenge. It is an existential one. However, here again we can quickly find examples of when human creativity and entrepreneurship reached remarkable heights under the pressure of severe limitations. In 1943, when faced with Hitler's intimidating Atlantic Wall on the other side of the channel, Winston Churchill and the allied leaders pondered an attack, now known as the D-Day landings. After resolving to invade, he ordered his military to design and deliver a level of naval power and technology that was far beyond anything imaginable. When he was met with incredulity by many of the highest ranking officials around him, his famously obstinate response was simply, "do not argue the details".

Conclusion

With all this in mind, it is perhaps not surprising that one of the major projects of the Climate Academy in recent years has been ["The Writings' on the Wall"](#). A brief outline of this project here will pull together the main themes raised in this chapter.

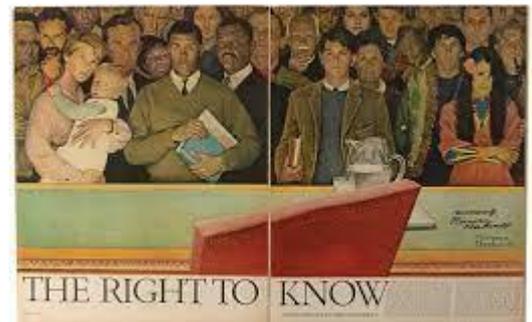
A wall is something seemingly insurmountable, permanent and daunting – rather like the climate crisis. How to respond to such an imposing obstacle, something as impervious to negotiation as the laws of Physics and Chemistry?



“The Writings’ on the Wall” mural. Climate Academy, European School Brussels II.

The first step is to recognise the reality of this boundary. The wall is just there. It is us, the humans, that need to be adjusting. It will not go away if we ignore it, it will not be moved by wishful thoughts. The wall is the absolute reality that we have to deal with. In the project, this wall has “SAVE OUR FUTURE, **CUTx** PERCENT NOW” written in big letters across it. This is because the carbon budget is the reality that we have to mobilise our systemic thinking about. The words represent a form of protest against limp political gesturing and targets that are set without any reference to the simple truths of science.

The faces looking out from the wall are those of the young people who will be most affected by the lack of climate action. Like the students who painted them, they are resolute and resilient, thoughtful and angry. It is their future that is threatened by the wrecking ball of climate change. The arrangement of the faces in overlapping lines is inspired by the Norman Rockwell painting, “The Right to Know” (1968). His powerful image, painted in the context of the Civil Rights movement and the Vietnam War, captured the responsibility of those in power to be just and transparent with everyone about what was going on.



The artist of the brilliant blue school mural was an Italian student, Amelie Zimmerman (Climate Academy 2019-2021).¹¹ It is a vivid demonstration of how barriers can provoke creative responses that hold an enduring value. It was painted during the pandemic when street protests were not possible – and so instead of banners and chants, the Academy did something more permanent in a public space. Something that not only will remain there for years, but that is also a luminous reminder of the truth for the students in school every day.

However, there are many layers of meaning to the wall. Firstly, it is no coincidence that it is painted inside a school. As Norman Rockwell underlined in the original work, everyone has a Right to Know

¹¹ Some ironic comments were made about Italians normally painting ceilings, not walls, in a renaissance.

what is happening above their heads. The mural is a call for government action to provide a proper education about the crisis. Secondly, the wall was designed to be replicable. The Academy is committed to implementing projects that are not only informed by systems analysis, but that are also designed to have a systemic impact. Any school around the world can paint a mural in the same format, with faces that appeal to the Right to Know and text that points to the science of CUTx (to safeguard their future). Each wall in a school has a different style and colour, depending on the particular context, interest or imagination of the designers (see the Climate Academy website), but the core message and science remain the same.

Thirdly, the wall performs the systemic thinking that its advocating for. It is a combination of Science (CUTx) and Art (Norman Rockwell); and is informed by History and Geography (the different faces, colours, and styles).

Fourthly, the wall now functions as a backdrop to different interviews or events that the Climate Academy carries out during the year. Thereby helping create a coherence to the different perspectives on the central problem.

And finally, for the Biblically versed. The phrase, “The Writings’ on the Wall” comes from the Old Testament. The Israelites had been crushed by a Babylonian invasion in 597BC and thousands were deported to live in exile in the remote capital far to the East. This collapse of the political, physical and symbolic order provoked the Psalmist to lament with the most profound sorrow, “By the rivers of Babylon, we sat down and wept when we remembered Zion. There on the trees we hung our harps, for there our captors asked us for songs, our tormentors demanded songs of joy... How can we sing the songs of the Lord while in a foreign land?”. (Psalm 137:1-4).

Poignant poetic lines. Why not put them to a disco beat, Boney M?¹²

It was in Babylon that the original story of the “Writing on the Wall” is set. In Chapter 5 of the Book of Daniel, the Babylonian King is hosting a grossly overindulgent feast. King Belshazzar, with thousands of nobles, his wives, and concubines, are drinking wine from golden goblets – made from the melted down treasures taken from the Jewish Temple in Jerusalem. Then suddenly, a floating human hand appears and writes the now famous words, “Mene, Mene, Tekel, Parsin”. With ‘week legs and knocking knees’ (Daniel 5:6) the King demands to know what the uncanny message means.

The prophet Daniel delivers the bad news. The King has not been humble about his wealth, he has treated the people under his power with disdain and, like his father King Nebuchadnezzar, his heart has hardened. Each word has a pointed meaning:

“Mene: God has numbered the days of your reign and brought it to an end.

Tekel: You have been weighed on the scales and found wanting.

Parsin: Your kingdom is divided and given to the Medes and Persians.” (Daniel 5:26-28).

By the end of the day King Belshazzar is dead.

When someone says, “The Writings’ on the Wall” today, outside of this Biblical context, they want are expressing the fact that there is a clear sign that something very bad is about to happen. The

¹² In fact, these lyrics have a strong resonance for all members of the Afro-Caribbean community who also suffered unimaginably large-scale death, persecution, exportation, exploitation at the hands of Western powers for centuries. <https://www.youtube.com/watch?v=jSxQJUV1e8k>

original mural in Brussels by Amelie Zimmerman has luminous blues for different artistic reasons – but one happy coincidence is that they are a strong evocation of the Ishtar Gate in Babylon.

When someone says that we are facing a climate crisis today, they would not use Biblical language. We have something even clearer, and without all the layers of culture behind it. We could simply state: “420 parts per million”. That is an unambiguous signal of terrible times ahead. The system is heading towards a major collapse.



The reconstructed Gate is now housed in the Pergamon Museum, Berlin.

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