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Can a Bestiary of Metaphors Help us to See Ourselves in Relation to Sustainability?

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Abstract

This paper explores how we may see ourselves as technology educators and how we see technology education in the world of education by the playful but earnest use of animal metaphors. The paper focuses on the relationship between technology education and sustainability education, and on how metaphors can encourage new ways of thinking.

Inspiration for the paper draws on several threads. First, there is the circumstance that technology itself is often described as the elephant in the room – ever-present but never talked about. This phenomenon contributes to a general lack of 'seeing' technologies for the fullness of their effects on our worlds. Second, the multi-faceted (and, at times ephemeral) nature of technology education indicates a range of species struggling to co-exist harmoniously. Third, for a sustainable world, all species should to be protected. Thus, a fourth thread suggests dilemmas around whether some species of technology education are actually compatible with sustainability education.

Metaphors can help us comprehend one concept in the light of another concept even when the two concepts seem outwardly quite different. A metaphor can change our conceptual system and can radically modify our perception of a particular situation. The paper explores a range of animal metaphors (species, traits, behaviours, needs, etc) to reflect on the nature and role of technology education in relation to sustainability; to ask questions about our technology education practices; and, to imagine alternative paths to the future. In order to address the central question of 'Which animal(s) are we?', the paper invites consideration of four Vs: vanity, victims, vision, and volition.

Key Words: metaphors, technology, sustainability, technology blindness, education, Blindspot Declaration

1 INTRODUCTION

Bestiary: A treatise on beasts, as written during the Middle Ages. (Onions, 1983)

This paper has as its background, the recently developed Blindspot Declaration (The Blindspot Group, 2025) – an attempt by a group of concerned academics to address perceived educational shortcomings around sustainability and technologies – a phenomenon we call technology blindness (See also Svensson et al., 2026; Svensson & Keirl, 2026). We invite colleagues in the professional technology education community to reflect on their practices, their thinking and, from the paper's title, how they see themselves in relation to sustainability. This is not to say that there is not a reciprocal need for sustainability educators to (re-)consider their own positions regarding technologies – that is a core concern of the Declaration.

The paper begins with some clarification of terms and of the use of metaphors. From the arch-metaphor of Technology-as-Elephant, we extend the use of animal metaphors in a bestiary to, in one way, celebrate the diverse nature of our field. However, such an approach also serves to create spaces to invite colleagues to consider how they are positioned, or position themselves, on the matter of technology blindness. Following the metaphors, we raise a pair of difficult questions for consideration. The paper concludes with two cautionary notes on vanity and victimhood and, two affirmative notes on vision and volition in support of the Declaration's orientation towards action.

2 CONCERNING THE USE OF 'US', 'WE' AND 'SEEING'

When we refer to 'us' and 'we' in the paper's title and content we are thinking of ourselves in three possible ways: first, as persons (individuals, teachers, educators); second as possible groups (special interest, primary, secondary, tertiary, subject, etc); and, third, as the collective PATT community or the (Design and) Technology professional community more broadly. Also, when we use the idea of 'see/ing' in this paper, there is the sense of seeing 'ourselves' in all the identities just described but we also in how we look at Technology Education (in which we are players) and how we look at Sustainability Education (in which, we suggest, we should be players). Thus, we argue that in order to see technologies for what they really are, and to help others to do so, it might be helpful to look at ourselves and our own practices first.

Seeing is not necessarily understanding. The blindness we are talking of is not about simply seeing a technological object. For example, we may *see* a car, but we don't necessarily know, understand or question its existence, its workings or its full environmental, social or political implications. Cars are systems operating within systems (Svensson, 2021). Generally, we know 'It's a car' and we 'get into the car' and such statements need little or no critical-conscious effort or attention. Our technologies become a part of the backgrounds of our lives – they drop out of sight. Collectively, our technologies constitute our lives, yet we can easily be blind to them.

3 ON METAPHORS

Using metaphor/s is an established linguistic practice – not least in the use of rhetoric, the art of persuasion. A metaphor is often used to help illustrate the characteristics or nature of one phenomenon by making links to the characteristics of another phenomenon - usually when there's nothing outwardly similar between the two phenomena. By this linking, the metaphor takes the place of a literal equivalent. Thus, in north European settings, people are sometimes described as

being owls or larks. The owl is a bird active at night while the lark is a bird which rises early in the morning: people are not *actually* larks or owls, but they may show the waking characteristics of them.

An important note: metaphors tend to be culturally located and may not readily transfer between cultures or languages.

Metaphors can be used for effect to illustrate a point or to support an argument, but they do not constitute evidence of fact or truth – not least because a metaphor may not be understood in exactly the same way by different hearers or readers. There is rich literature about terms similar to metaphor as well as about its relatives such as extended, dead and mixed metaphors (see, e.g. Blamires, 2000). For this paper, metaphors are used as 'imaginative substitutions' in order to help 'see things otherwise'. We begin with the macro-metaphor for our field, that of the elephant.

4 TECHNOLOGY AS THE ELEPHANT

The phenomenon of Technology has long been described as 'the elephant in the room'; the idea being that everyone in the room knows it's always there, but no one really wants to talk about it. This circumstance both comes from, and contributes to, a general inability to 'see' technologies fully for their effects on our worlds.

Sclove (1995) introducing his text on democracy-technology relationships, addressed the way in which we unquestioningly accept technologies into our lives. He illustrates well the lack of participation we have in the decision-making around the design or desirability of technologies and how we are complicit in perpetuating their development and impacts.

> This complicity in technological decisions that haphazardly uproot established ways of life is as perplexing as discovering a family that shared its home with a temperamental elephant, and yet never discussed – somehow did not even notice – the beast's pervasive influence on every facet of their lives (Sclove, 1995:5).

While deep concern around the phenomenon of Technology (big T) is well illustrated as temperamental elephant, our worlds comprise multiple technologies (small t) which are themselves complex beasts. Normal engagement with technologies is often limited to uncritical usage while deep understanding of their multi-faceted, polyvalent (Sclove, 1995) and multistable (Ihde 2002) natures remains elusive. The Blindspot Group have recently attempted to summarise the situation:

> Technologies…can assume different roles in various situations and they embody multiple, often competing, values. They are neither ahistorical nor apolitical and articulate powers that are often undemocratically distributed. Technologies are never neutral and they can be overtly present or seemingly invisible in their existence. Deep understandings of technologies are intrinsic to critiques of ecological perception, economy, sustainability and potential post-human conditions. Despite all these circumstances, technologies remain largely understood in only superficial ways and lack critical-ethical interrogation. (The Blindspot Group, 2025)

From what has been said so far, it would be quite unreasonable to expect the technology education community to take on the vast range of issues that constitute the elephant. However, if our community accepts that it has a role to play in the world's sustainability challenges then we might look at ourselves first in relation to technologies, sustainability and education and, second, at how we might work with others with similar ambitions.

The parable of the elephant and the blind people serves to remind us that our personal perspectives are no guarantee that we understand the whole of the technology phenomenon. As the parable goes, a group of blind people (some climbing ladders) gather around an elephant and each one touches a part of the elephant, each now believing that they know what an elephant is. While none can have the whole picture, there is also no guarantee that their collective knowledge is enough to give an accurate understanding of 'elephant'. Equally, amongst technology educators, even our collective perspectives may not amount to a true picture of our elephant.

5 EXPANDING THE BESTIARY

The world of technology education comprises creatures of many kinds. This is of no surprise when we think of the kinds of families that exist in our field. Some examples: are we primary, secondary or tertiary? Are we craftspeople, digitals, foodies, engineers, designers, technologists? Are our tendencies sociological, political, psychological, philosophical? Do we relate to the arts, literacy, mathematics, science, history, anthropology? Are we creative, instrumental, functional, visionary? What kind of technological literacy do we subscribe to – instrumental, participatory, emancipatory, critical, ethical?

With such an exceptional range for one field of education, the opportunities for metaphor are plentiful. We offer some playful but earnest application of animal metaphors for how we might see ourselves in our technology education world. In no particular order:

Technology is perhaps a **chameleon**: changing colours according to situation; able to 'be' in different ways at different times; hard to see in relation to sustainability. Some technology educators may be chameleons themselves or else **leopards**, survivors but unable to change their spots so carrying on the same old way without regard to the environment.

Ants work cooperatively using different competencies to build and maintain their colony. Their nests can spread for thousands of kilometres. Like technology educators, there are many species across the world and while most work to maintain their community, fire ants (like **termites**) are notable for their destructive capabilities, looking after their own environment whilst destroying those of others. Like technology educators, ants have one of the best strength/body weight ratios.

The **owl** has a mixed reputation so far as technology-sustainability relations go. In places it is wise, but it is also a predator and happiest in the twilight – between darkness and light. In some cultures, it is welcomed. In others it is the bringer of supernatural danger or death. It does have binocular vision which is useful for seeing technologies….and **mice,** which it hunts; so mice are quiet, timid and feed on the crumbs from the table – much like technology education.

With special regard to technology-sustainability consciousness many education systems and some educators remain **ostrich**-like. Despite having the largest eye of any land-based creature, that eye is larger than the ostrich's brain. This may explain its lack of interest in the state of the world

around it as well as why it can't fly. It's hard to see where you are going (or might like to go) with your head in the sand. Nor can we maintain criticality if we are **parrots** of the words of others or **mules**, stubbornly refusing to move until we're ready? Better, are we parrots because of our capacities to learn and to use tools or mules for the loads we can bear? Perhaps we're **dolphins** - clever, social, good communicators, smooth, and playful.

Fish offer several metaphors for looking at ourselves. The phenomena that Sclove (1995) and The Blindspot Group (2025) describe are the water that we swim in. When fish ask: "What is water?" it is their version of technology blindness. But we mustn't overlook the ponds we inhabit. Some ponds are very good for sustainability. Unfortunately, many are not; often thanks to technologies. Some have **alligators** – of which we must beware! Technology education and educators might reflect on the size of the pond they inhabit before deciding whether they, or their pond, are big or small.

Or we're tool-using creative problem-solvers such as **primates, crows, and parrots,** (or, recently, a **cow**). Or builder-architects such as **bees, ants, spiders, birds, beavers** all with their own environmental benefits and consequences. Perhaps we're into duplication avoidance like the **cuckoo** who uses other birds' nests; or **magpies**, always stealing or collecting. Our preference might be the metaphor of **fox**, sly, cunning and crafty – who, in Sweden can be found behind the ear.

If endless creativity and problem-solving isn't for us then we could consider the **sloth**, which comes in two forms. The two-toed sloth has two claws on its front limbs (good for getting a grip of things and more – see below) while the three-toed sloth has three claws (for even better gripping perhaps). Both have three claws on the rear feet. There are other advantages too. Sloths are very particular about where the defecate; they have a low-energy, green diet and spend most of their time hanging about in trees and thus having a very low carbon and ecological footprint; they are very good swimmers, so they know about ponds; everything about them is slow-moving which makes them great survivors.

There is one huge beast that lumbers about and is such a size that it can't easily be moved and everyone else has to work around it. It is the **hippopotamus** known as STEM; which actually presents a mixed metaphor as it is also four types of **cat**: two top cats - large and predatory called Maths and Science; another, sometimes a clever problem-solver, called Engineering; and, fourth, Technology - a domestic, alley or pussy cat (a shape-shifting sub-species) which are always present around humans. To further mix the metaphor here, the shape-shifting sub-species of Technology cats can also take the form of the hidden animal that cannot be seen – the elephant. Occasionally, the **giraffe** (known as Art) sticks its long neck in among these creatures, but it usually ends up being devoured.

Our technology education bestiary is well populated with multiple species with varying positions in relation to the technologies, sustainability and education but, it seems to us, there is more to the matter than species-spotting. There is competition; harmony isn't always possible; and there are contradictions. For us, two conundrums arise.

6 TWO CONUNDRUMS

A conundrum is a riddle (often light-hearted) or, otherwise, a hard question – one that is difficult to resolve because of its complexity. We perceive two conundrums at the core of this paper's concerns. First, if one core principle for a sustainable world is that all species should be protected, then should the same be true for all species of technology education? Put otherwise, if some species of technology education are incompatible with sustainability education, then should they be abandoned? Here, the pursuit of the sustainability principle of ecological balance cannot defend all of technology education's species.

Implicit in the conundrum posed above are some serious debates and difficult decisions – for our profession and beyond. Are we willing to engage these debates and challenges? Here lies our second conundrum. Is sustainability technology education's elephant in the room?

With their focus in the nexus of technologies-sustainability-education, The Blindspot Group have this to say about sustainability:

> Sustainability is a necessary response to many challenges; some of which are existential. It resists simple categorization but is often viewed positively through hope and strategic optimism towards the future or negatively via pessimism and apathy. It is dynamic and shapeshifting, requiring contextual awareness and sensitivity. The transition to more desirable futures presents technological, political and ethical challenges. Sustainability is ethically defensible yet it remains weakened by the absence of critical technological discourse. (The Blindspot Group, 2025)

If sustainability is technology education's elephant in the room, then such discourse, along with our own internal debates, might help expose the elephant and advance the interests of all planetary species. We suggest that the place for discourse development is in the pond we call the nexus – a place to discuss new approaches, to strengthen our practices, to deepen our knowledge, and to collaborate. The matter of technology education's role in delivering on principles of sustainability is not a challenge for technology educators alone.

7 PUTTING OUR TWO FINGERS TO USE

One use of our two-toed sloth's two claws is to see them as fingers to make the 'V' sign. We identify four Vs for consideration:

Vanity: One way of seeing ourselves is to use the reflections of a mirror or water. However, there are cautionary tales. In Aesop's fable, the dog with a bone in its mouth sees its reflection in the water, perceives another dog with a bigger bone so, trying to grab the other bone, drops its bone and loses both. From the Indian Panchatantra animal fables, the lion falls into the well having been tricked into thinking its own reflection was that of another lion. While reflection is powerful and useful, it can also be a tool of vanity.

Thus, excessive pride is of no value in critical reflection. As big fish in our little pond, we are reminded to maintain objectivity, research, new thinking and, importantly, humility towards

knowledge - both old and new. If we think we have 'the answer', or all the answers, we remain unwise. Reflection without vanity is a way of overcoming technology blindness.

Victims: Does technology education see itself as victim or survivor? Are we predators or predated? Are we winners or losers? Have we alligators in our pond? In many ways these are curriculum questions. If, for example we consider Layton's (1994) work for UNESCO on the (then) globally new and emergent subject of Technology Education he chose the metaphor of the theatre to identify six 'principal actors in this curriculum drama' (Layton, 1994:13). Two – economic instrumentalists and professional technologists – remain privileged in that the economy and those perceived necessary to feed it are to be protected. Thirty years on, the other actors (girls and women; sustainable developers; defenders of participatory democracy; and liberal educators - who value the subject for its own intrinsic merit) remain marginalised and continue to struggle for their identity and curriculum survival.

Seeing victims in technology education is a matter both of looking at ourselves and how we respect each other as well as resisting any collective victimhood that is imposed from outside. It is possible that we both create victims and that we are victims; and creating a passive victim mentality of helplessness is no characteristic of sustainability.

Vision: Ways of seeing can take many forms in the animal world. For our part, the Blindspot Declaration is intended to help overcome technology blindness towards sustainability education and vice versa. It is both a way of *seeing* and a way of *imagining*. It offers a vision of different ways of doing things. As it claims: 'Education that perpetuates technology blindness is no longer defensible' but it also observes that: 'An absence of holistic and critical perspectives on the interplay of technologies and sustainability is perpetuated by current educational models.' (The Blindspot Group, 2025).

Vision is called for to bring a variety of 'actors' from multiple disciplines into the nexus. To mix our metaphors again, such actor-animals may help us see otherwise: the wise and binocular owl; the chameleon with two independently mobile eyes with a brain independently processing each input; or, the eight-eyed spider (a weaver of strong but light webs looking to catch the blind).

Volition: If seeing the issues and imagining alternative worlds and ways of doing things are to be realised, and the Blindspot Declaration offers a way to do this, then a necessary ingredient is that of volition: the will to act. At a rather basic level, if things aren't right, should we act? If yes, how should we act? These are ultimately ethical and political questions. So far as education is concerned, the Blindspot Declaration sees things this way:

> Education, formal and informal, is a political act which has the responsibility to better the living world….Matters of complexity, holism, emotions, values and ethics all call for attention when educating about technologies and sustainability. (The Blindspot Group, 2025)

The deep significance of volition in relation to Technology was articulated by Mitcham in 1994 and he reiterated this for engineering education in 2014 (Mitcham, 1994; 2014). He noted that: '…the issue of volition remains central to any philosophy of action – and thereby to any comprehensive understanding of technology.' (Mitcham, 1994:254). This argument remains true for technology education itself (Keirl, 2018).

8 WHICH ANIMAL(S) ARE WE?

Many of our metaphorical creatures in the bestiary could identify with how Mitcham sees technology as object, activity or knowledge but where are we in relation to our will to act, our volition? If no creature we know can be used as a single metaphor for how we could see ourselves in relation to sustainability, perhaps the issue is that the only animal to which we can attribute all four of Mitcham's terms, including volition, is the human. Human action has brought us to the current state of play in the world and, we argue, human action through education must address how things could be otherwise

The great Swedish 'Father of Modern Taxonomy' and a founder of modern ecology, Carl Linnaeus (later Linné) gave us us the Latin binomial (two-names) system for creatures large and small. We recall his naming of our own species: *homo sapiens* (wise human). Is it possible to be wise if we remain blind to technologies-sustainability realities?

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Affirmation

This paper is original work, and the authors take full responsibility for its content.

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