

# Human learning and the development of mind in the Anthropocene

Reflections against the backdrop of Big History

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Paper: [www.learndev.org/dl/HLA/IBHA2016.pdf](http://www.learndev.org/dl/HLA/IBHA2016.pdf)

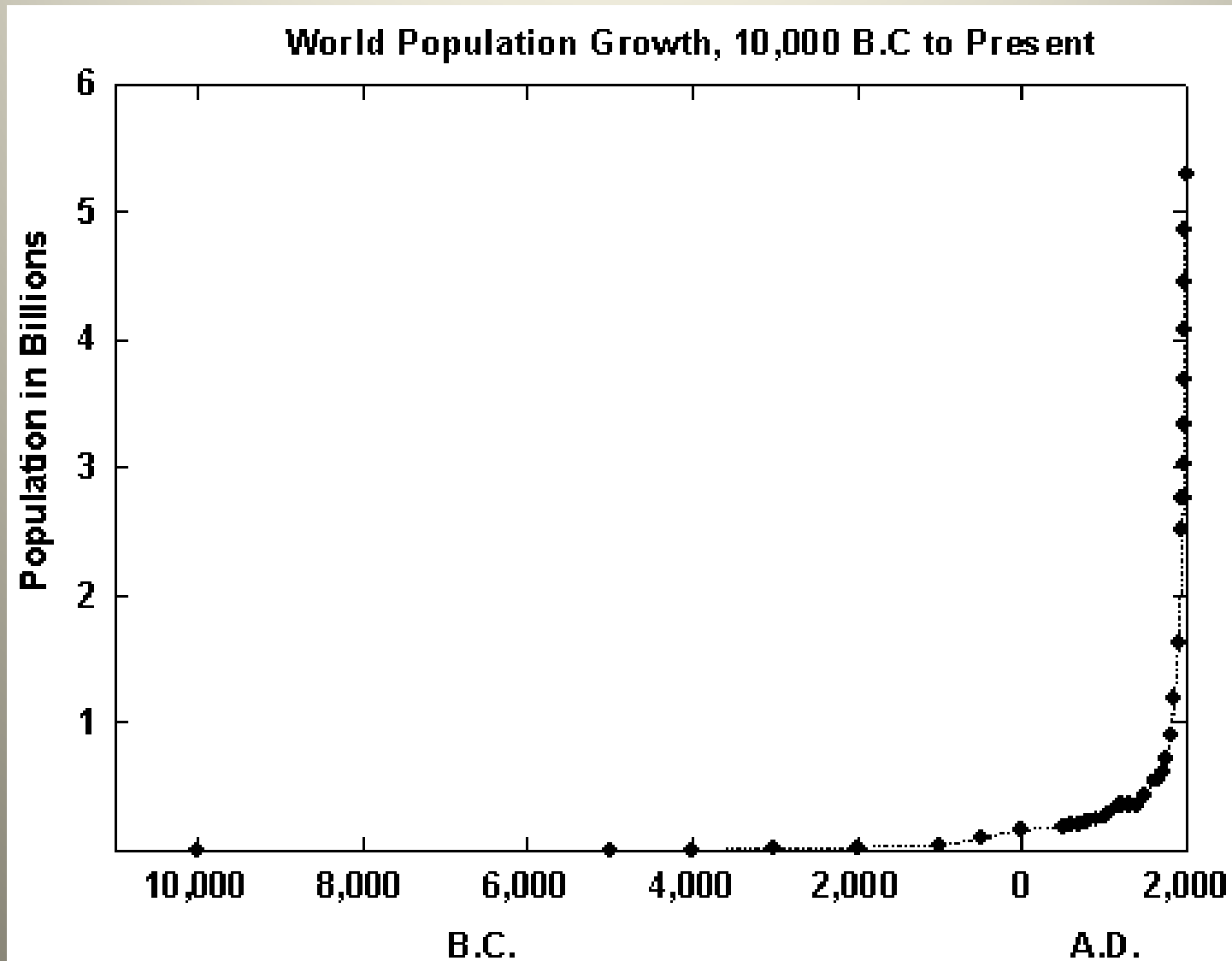
Slides: <http://www.learndev.org/dl/HLA/IBHA2016-slides.pdf>

# Arthur Koestler, 1967

- The uncanny properties of exponential curves reflect the uniqueness of our time—not only the population explosion, but also the explosion in power, communications, and specialized knowledge. (p. 317)
- Our imagination is willing to accept that things are changing, but unable to accept the rate at which they are changing and to extrapolate into the future. The mind boggles at an exponential curve as Pascal's mind boggled when, in the Copernican universe, infinity opened its gaping jaws: '*Le silence éternel de ces espaces infinis m'effraie.*' (p. 319)

Source: Koestler, A. (1967). *The Ghost in the Machine*. London: Hutchinson & Co.

Not even exponential, but uncanny all the same.



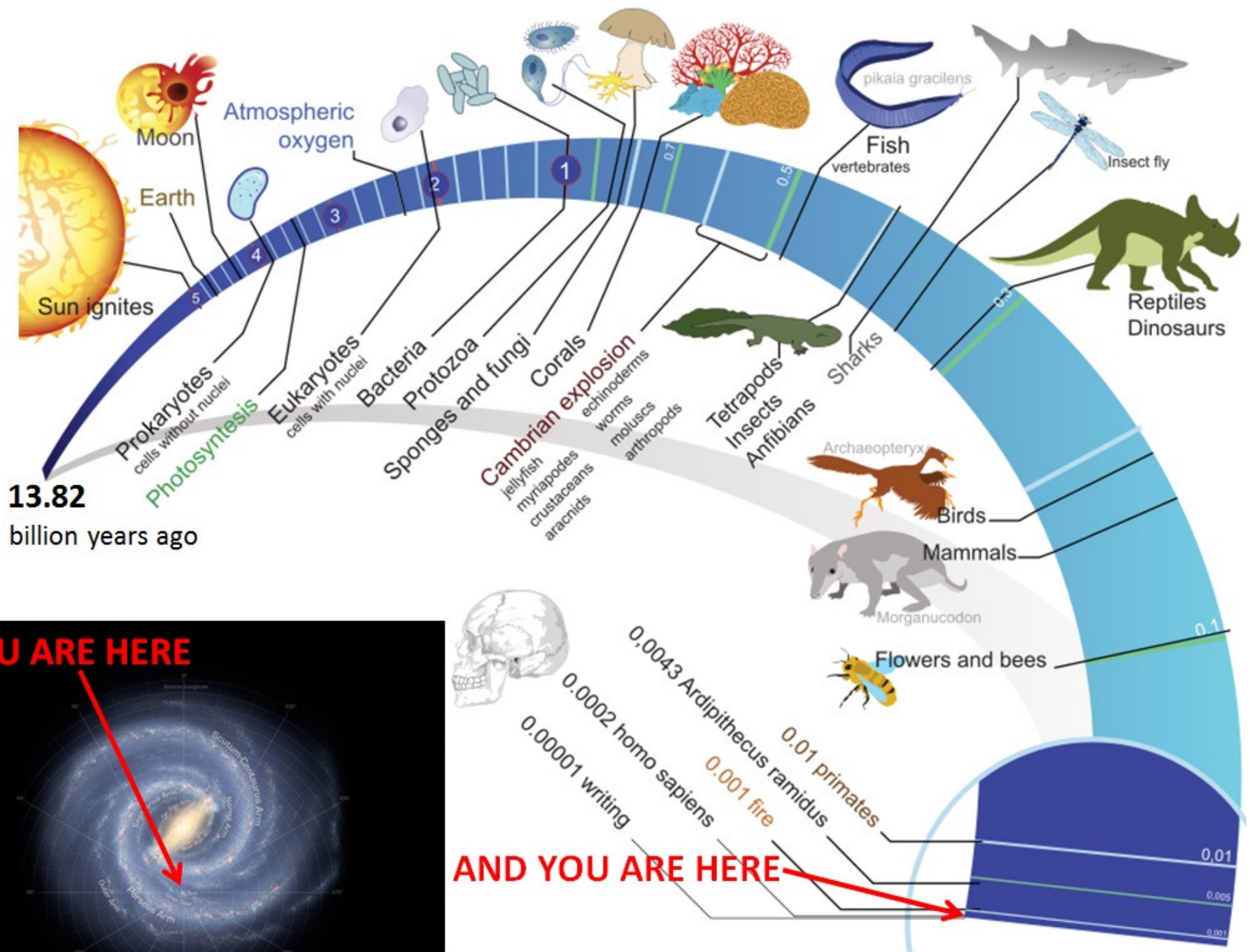
# From a small step to bigger steps back in time: Changing orders of magnitude

Time frame in Ga	Object of evolution	Unit prefix
0.00000003	String quartet	none
0.0000006	Urbanization	Kilo
0.000001	Culture	Kilo
0.003	Genus Homo	Mega
0.2	Mammals	Mega
3.8	Terrestrial life	Giga
13.8	Universe	Giga

# We live in a four-dimensional world.

- TIME: temporal frames of experience
  - ephemeral moments
  - hours, days, months, years, phases of life, lifespan
  - historical periods
  - Big Historical periods
- SPACE: spatial frames of experience
  - body parts – body
  - room – home – neighborhood – village/city
  - region – country – continent
  - home planet – solar system – galaxy cluster
  - universe (ours)





**IN SPACE AND IN TIME**

It is through the full exploration of the multiplicity of our spatio-temporalities that we understand our world and our place in it deeply.

Problems:

- The school
- Narrow perceptions about learning

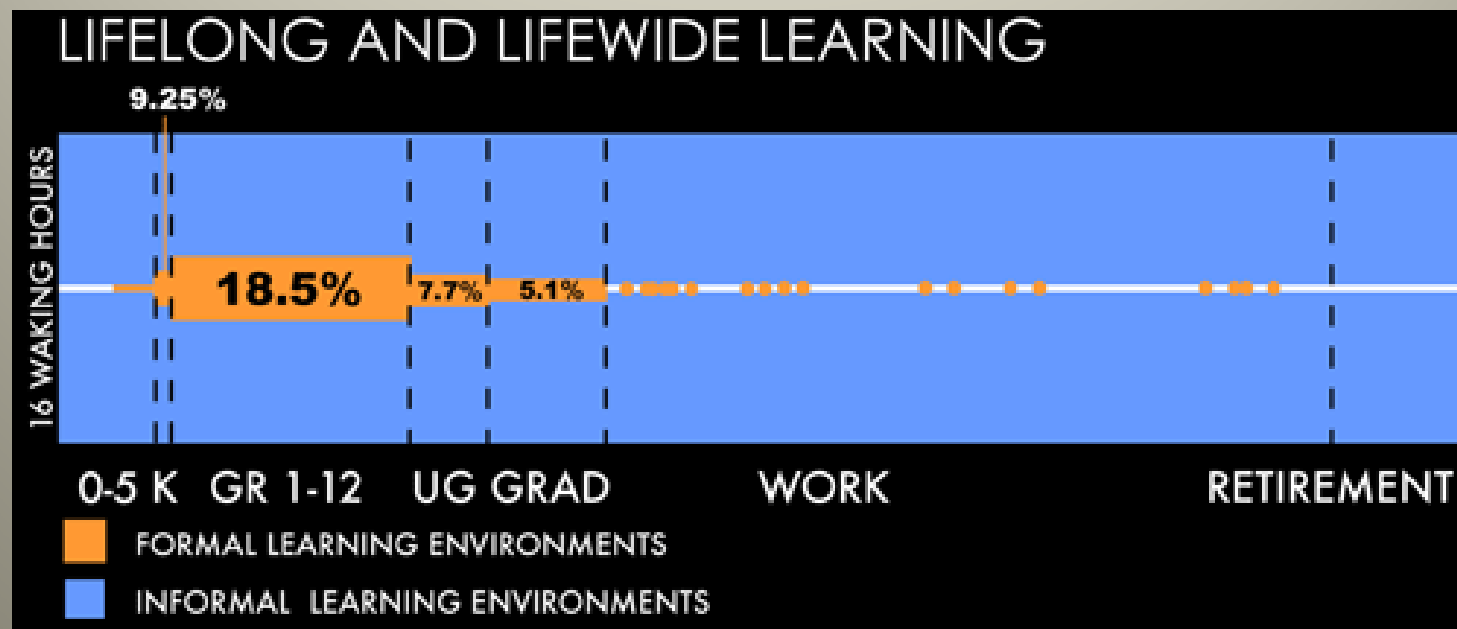
As long as Big History is merely a subject taught in schools as we know them, we have a problem.

The experience of our multiple spatio-temporalities must pervade our lives.

# Meaning of Learning project:

## Learning Stories Research

Learners of all ages, from different cultural backgrounds, with levels of literacy in diverse domains ranging from illiterate to the highest levels of academic achievement, locate their life's most meaningful learning experiences outside the school context.





# An enhanced conceptualization of learning

*Learning is the disposition of human beings, and of the social entities to which they pertain, to engage in continuous dialogue with the human, social, biological and physical environment, so as to generate intelligent behavior to interact constructively with change” (J. Visser, 2001, p. 453).*

# Key features of new definition

- Disposition
- Individuals + social entities
- Lifelong dialogue with environment (human, social, biological, physical)
- Focus on constructive interaction with change (i.e. pos./neg.)

# Understanding the world in diverse ways

Kind of understanding	How it works
Somatic	Bodily experience.
Mythic	Awareness of the known as embedded in the unknown; mystery; awe; metaphor.
Romantic	Identification with heroes; association with the transcendent qualities the heroes embody.
Philosophical	The world of ideas; conceptual frameworks; abstractions.
Ironic	Recognition of different meanings through different kinds of understanding; humor; ambiguity.

Kieran Egan (2008): The future of education: Reimagining our schools from the ground up. New Haven and London: Yale University Press

# Big questions

Where do we come from? What are we? Where are we going?



Paul Gauguin's 1897 painting "D'où Venons Nous? Que Sommes Nous? Où Allons Nous?"  
(Source: Wikimedia Commons)



# Big questions in prehistory



Who are we, among all that lives? Rock art from the Serra Da Capivara, Piauí, Brazil.  
(Photo credit and captioned title: Jan Visser.)



# Where are we going?

A seemingly timeless question throughout history.

A most timely question now!

**Anthropocene:** A proposed term (by Paul Crutzen) for the present geological epoch (from the time of the Industrial Revolution onwards), during which humanity has begun to have a significant impact on the environment.

# Dutch response to the Anthropocene



# Not by Big History alone.

To more deeply understand where we are going, Big History is not enough.

Bodily experiences are the foundations on which we stand in order to understand. They are best grounded in as broad a *multiplicity of spatio-temporalities* as possible

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# A bouquet of wildflowers

Just for starters, a few things to work on.

- Transdisciplinarity
- Multiplicity of spatio-temporalities
- Order of magnitude
- Mathematics
- Metaphor
- Sense of beauty



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# THANK YOU!



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