

Chapter 18

History of European Education from Euclid to Contemporary Times: Moving toward Cognitive Limits as the Foundation for Education in the Future

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ABSTRACT

Humans have been approaching their cognitive limits through technological and social development, as well as widespread use of information and telecommunications systems and computers. Cognitive limits are a limiting condition of modern culture. The information and knowledge dimension is characterized by irrepressible and uncontrolled growth; it characterizes on one hand civilization itself and on the other hand every individual sphere of knowledge. In this case (when we have to process too much information), the necessary information and knowledge volume for effective action can be neither obtained, understood, nor used. This limit can also become a serious obstacle for the development of civilization, including limitations such as mineral resources, pure water, and fresh air. Overcoming this barrier can largely be accomplished through a revision of the form and content of education using an interdisciplinary approach.

DOI: 10.4018/978-1-4666-2122-0.ch018

INTRODUCTION

Contemporary life is changing rapidly. In fact, we live in a watershed era. We now experience unprecedented changes on an enormous scale. The English clergyman and scientist Rev. Thomas Malthus in 1798 wrote that a population under favorable conditions grows in accordance with the law of geometric progression: by the same number of times over the same intervals. This law stands true for the growth in the numbers of animals of different species in a situation in which there are sufficient resources.

$$\dot{N} = \alpha N \Rightarrow N \sim \exp(\alpha t) \quad (1)$$

However, this has not proven applicable to humans. Studies conducted by paleodemographic scientists and systems analysts have shown that throughout human history the population has increased along the time axis in accordance with hyperbolic law. The asymptote for the hyperbola is 2025.

$$\dot{N} = \alpha N^2 \Rightarrow N \sim \frac{1}{t_f - t}, \quad (2)$$

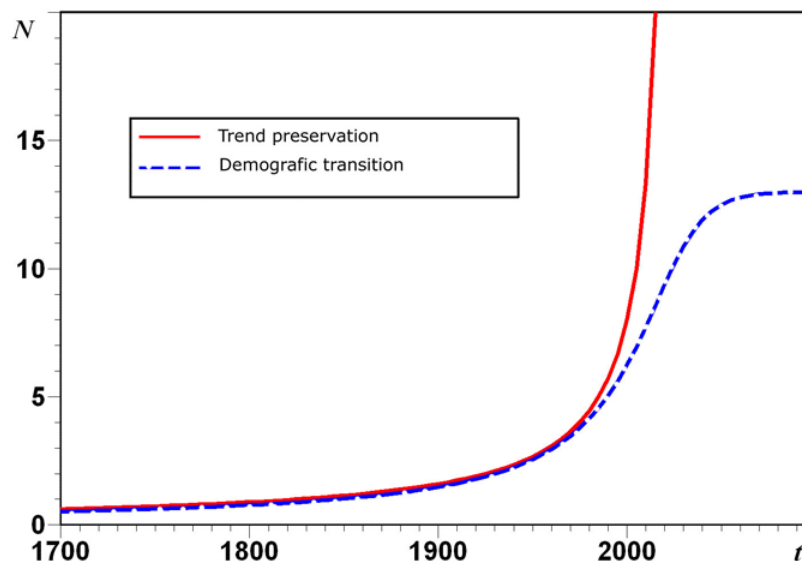
$$t_f \approx 2025$$

Had the law remained constant, by that time there would be an infinitely high number of people. (refer to Figure 1)

Within the generation now living, the law has changed. [9] We can observe a sharp deceleration in population growth. Scientists call this phenomenon a global demographic transition. The Keldysh Institute of Applied Mathematics and other organizations predict global population will stabilize at approximately 10-12 billion. The scale of the difference in demography, and hence economics and energy, can hardly be overestimated. The difference between the previously plotted trajectory and the current one has already reached more than 2 billion people.

The changing of population grow lead to transformation all social situation in the World and according to this appearance of new type of education.

Figure 1. The law of growth in the number of people



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