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Eco-Pedagogy and Media Sustainability Values of the Flipped Inclusion Model in the Anthropocene Era

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ABSTRACT

Deep environmental, social, and economic imbalances are characterizing the geological epoch of the anthropocene: it is man who alters the integrity of the biosphere, which has a decisive influence on global ecology and on the quality of life. The training of teachers, agents of change to guarantee environmental sustainability, represents a necessary investment. The authors propose to apply active and participatory eco-pedagogical models of existential planning such as flipped inclusion, whose scientific evidence is already amply corroborated about the inclusive-ecosystem transformative impact, as the model invests in media ecology as a process of prosocial education to be anchored in human values.

KEYWORDS

Ecological Crisis, Education, Flipped Learning, Inclusion, Sustainability, Teachers, Values

1. ANTHROPOCENE ERA: ANTHROPIC IMPACT, HEALTH OF THE PLANET EARTH AND PEDAGOGICAL PERSPECTIVES

Deep environmental, social and economic imbalances are characterizing the current geological epoch.

Rapid urbanization and industrialization, climate change and an increasingly interconnected world have led to drastic environmental and psycho-social risks, resonating with the relationship of mutual interdependence between man and nature.

The Nobel Prize for Atmospheric Chemistry Paul J. Crutzen defines *Anthropocene* as today's Era of Man, characterized by the devastating action of the individual on the terrestrial ecosystem, by radical changes generated by the transition to a digital revolution that has invested all aspects of society, modifying culture and communication, coordinates and ways of *being-in-the-world* (anthropological mutation) (Schwägerl, Crutzen, & Renner Jones, 2014).

The spasmodic human impact on an international scale causes an ever-increasing number of environmental disasters: it is man who reshapes the Earth, alters the integrity of the biosphere and

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has a decisive influence on global ecology, with territorial, structural and climatic conditions such as to affect the geological processes and, consequently, on its own psycho-physical Well-being.

The United in Science (WMO, 2021) report, a summary of the scientific consensus on the state of climate change outlined by the ONU agencies (WMO, UNEP, WHO), the IPCC, the Global Carbon Project and the British Met Office, compiled by the World Meteorological Organization (WMO) (2021) on behalf of the Secretary General of the United Nations, returns a devastating picture, summarized below:

1. The emissions of the main greenhouse gases - carbon dioxide (CO_2), methane (CO_4) and nitrous oxide (N_2O) - continue to increase, despite a decline of 1.98 $GtCO_2$ (5.6%) recorded in 2020 due to the Sars-Cov-2 pandemic. A comprehensive analysis of the three major greenhouse gases shows global mean atmospheric concentrations of CO_2 at 410.5 ± 0.2 ppm, CO_4 at 1877 ± 2 parts per billion (ppb) and N_2O at 332.0 ± 0.1 ppb (WMO, 2021). CO_2 emissions - coal, oil, gas and cement - peaked at 36.6 $GtCO_2$ in 2019.

According to the European Environment Agency (EAA) (2019), energy use is responsible for 77.1% of greenhouse gas emissions, about one third of which is attributable to transport. The remaining share of emissions comes for 10.55% from agriculture, for 9.10% from industrial processes and product use and for 3.32% from waste management. Some research studies show that digital technologies also generate global CO_2 emissions (related to both the production and the operating energy of ICT devices) of around 4%, but it is estimated that by 2040 they will reach over 14% of the world level of greenhouse gases in the atmosphere (Belkhir & Elmeligi, 2018). Furthermore, the energy-intensive warfare activity of the current conflict between Russia and Ukraine is further contributing to the release of huge amounts of pollutants, harmful emissions that add up to visible human, moral and material damage, which will expose ecosystems to damage for a long time, with incalculable environmental costs.

2. The global average surface temperature for the period from 2017 to 2021 is among the hottest ever recorded of the average for the thirty-year period 1991-2020, with an estimated increase between +1.06° C and +1.26 ° C (WMO, 2021, p.3). Not surprisingly, 2021 recorded extreme weather and climatic events, identifiable in the record heat wave in North America (with temperatures up to 50° Celsius) and in the floods of Western Europe in Germany, Belgium and Italy.
3. Extreme heat, fires and air pollution have produced risks and consequences for human health (WMO, 2021) through direct impacts - including increased morbidity and mortality due to heat stress, heat stroke and exacerbations of cardiovascular disease, respiratory and cerebrovascular- and indirect effects concerning, instead, the alteration of human behavior (physical and mental activities), as well as air quality. For Karanasiou et. to the. (2021), Watts et al. (2020) & Emami et al. (2020) Long-term exposure to air pollution is linked to chronic diseases such as asthma, chronic obstructive pulmonary disease, lung cancer, heart disease, diabetes, and nervous system effects.
4. Furthermore, the estimates of the United in Science (WMO, 2021) report highlight the rise in sea level with impacts on coastal habitats. The global average water level increased by 20 cm from 1900 to 2018 and at an accelerated rate of 3.7 + 0.5 mm / year from 2006 to 2018. This index is constantly increasing (WMO, 2021).

These premises are sufficient to attest that humanity must find solutions to ensure environmental sustainability and natural resources for future generations (Panov, 2013).

The statistical data collected recall the urgent need to invest, through a transdisciplinary convergence of reflections and research, in the conservation of natural systems, in the implementation