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Environmental Health Education: From Museum Specimens and Math Word Problems to Virtual and Augmented Reality

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ABSTRACT: Environmental degradation and its severe impact on human health has revealed the necessity for effective educational interventions. Given the importance of "Environment," "Health," and "Education," as key pillars for the achievement of sustainable development, the education for environmental health is evolving into a main component of current strategies against environmental health threats, such as climate change and urban air pollution. Environmental Health Education, which must be considered as a strategical response against environmental degradation, offers vast capacity for innovation alongside every educational stage. For instance, the application of new technologies, such as virtual and augmented reality applications, the adoption of innovative interdisciplinary educational approaches, and the incorporation of Arts are evolving into a new era's educational perspectives. All the new trends in formal, non-formal and informal Environmental Health Education should be captured and assessed, in favor of protecting both local and global natural environment, human and animal health, and promoting sustainability.

KEYWORDS: Environmental health, environmental education, sustainable development, museums, math word problems

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Introduction

Environmental degradation and its severe impact on human health has revealed the necessity for educational and policy interventions, aiming at protecting the natural capital and human health, reducing environmental health risk social disparities, and moving toward sustainability. Given the importance of "Environment," "Health," and "Education," as key pillars for the achievement of sustainable development, the Education for Environmental Health is evolving into a main component of current strategies against environmental health threats, such as climate change and urban air pollution.

Courses related both directly and indirectly to "Environmental Health" are being incorporated into the curriculum of various primary, secondary, and higher education institutions. Also, environmental health is present in many non-formal or informal educational programs, and awareness-raising campaigns.

In this specific collection, we would like to introduce the terms "Environmental Health Education" and "Education for Environmental Health," which should be considered as synonyms, and as umbrella terms that embrace the term "Environmental Education." As a matter of fact, the traditional "Environmental Education" is constantly evolving by acquiring crucial sustainability dimensions, leaving behind the simpler and narrower versions of the "traditional" and outdated "Environmental Education" initiatives that were neglecting important sustainability factors, such as the ones related to socioeconomic and health context. Also, given the unfruitful and in many cases unreasonable controversy over the terminology and content of terms such as "Environmental Education" and "Education for Sustainable Development,"[1-2] all the relevant terms which appear in this special collection, such as "Environmental Education," "Education for Sustainable Development," "Environmental Health Education," and "Education for Environmental Health," should be considered by our authors and readers as synonyms.

Innovation in Environmental Health Education

Innovation, which may be considered as a function of time, location, explicit, and tacit knowledge acquisition,[3] must be an integral part of all interdisciplinary Environmental Health Education strategies that take into account both global and local reality and needs, in favor of establishing new pedagogical approaches aiming at sustainable development.

Education for Environmental Health offers vast capacity for innovation along every educational stage. The adoption of innovative interdisciplinary approaches, the application of new technologies, such as virtual and augmented reality applications, and the incorporation of Arts into the environmental education are evolving into a new era's perspectives, by constructing a new educational reality.[4-8]

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Regarding the interdisciplinary approaches, there is evidence that environmental education can be innovatively combined with other learning activities, such as in the case of language teaching.[8-10] Moreover, the guest editor of this special collection recently published a large collection of math word problems of environmental health content that pass the relevant information to primary school students while simultaneously exercising their potential to solve math word exercises of varying difficulty.[11]

Also, the guest editor and his research team are using museum pathological specimens related to diseases of environmental health origin in the training of environmental health students. Indeed, the students who visit the Museum of Pathology of the Athens Medical School can see, and study specimens displaying, for instance, malignant melanomas of the skin, skin melanoma metastases, lung anthracosis, cases of sirenomelia, and other diseases related to environmental health hazards, such as ultraviolet solar radiation, endocrine disruptors, and carcinogenic chemicals.

The Necessity to Capture the New Trends in Environmental Health Education

In our opinion, the global urgency, as depicted by the ongoing environmental degradation, makes the capturing of the new trends in Environmental Health Education a prerequisite for entering a new promising era in the education for the protection of both the environment and health. Environmental Health Education may be considered as a strategical response, and a solution-provider against environmental degradation and its impact on health, and on other critical sectors. It requires innovative approaches that foster sustainable development goals. Many of these necessary approaches already exist, but they should be carefully captured, assessed, and potentially accepted on a wider scale.

Conclusion

Environmental Health Education may be considered as a strategical response against environmental degradation and its impact on health. All the new trends in formal, non-formal, and informal Environmental Health Education should be captured and assessed, as they may offer solutions and new "arrows" in the quiver against both local and global facets of the ongoing environmental degradation that threatens human health and the achievement of sustainable development goals.

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