Original Paper

Literacy: Promoting Sustainability in a Digital Society

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Abstract

We increasingly live simultaneously immersed in physical interactions and in a world where the digital dimension is present at various levels, such as the social, economic and political ones. In this context, the relationship between the digital world and Sustainability is pivotal. This aim of this paper is to discuss, in a reasoned manner, the importance of literacy in the promotion of sustainability in a digital society. For this purpose, the results of a literature review will be mobilized, as well as our 20 years of experience in teaching and research in the fields of sociology, education and organizations, without forgetting the publications that we have on similar topics, which will be, whenever heuristically relevant, mobilized to substantiate and justify the arguments presented herein. The conclusions show that, in a reality where the digital involves many of the life dimensions—for example, in the form of Industry 4.0 and Society 5.0—the role of literacy and, in particular, digital literacy, are critical in the development of sustainability literacy. For this to be possible, significant training work must be carried out. Furthermore, it is not possible to assume that the access, the skills in its use and the benefits of this wonderful digital world will automatically be grasped and felt by all citizens, in an ideology that must be fought. Only in this way will it be possible to foster sustainability, which must necessarily be inclusive.

Keywords

sustainability literacy, digital literacy, society 5.0, industry 4.0, digital culture, Sustainable

Development Goals

1. Introduction

Currently, globalization processes, in general, have resulted in a more interconnected world but, at the same time, new and profound challenges. According to Bland and Ross (2018, p. 80), "The challenge we face is how to bring about a future that is both politically acceptable and economically and socially bearable (or, ideally, more fulfilling than in the past)".

In the course of this globalization, new and advanced technologies have emerged, which have added to an increasingly complex, connected and, simultaneously, exposed world (Liyanage, 2010), which entails profound consequences, many of them unforeseen, for societies and the very interactions that are (not) established between individuals (Serpa & Ferreira, 2018).

At the same time, this growing technological progress calls for the need to consider a set of strategies and actions that can add to a better adaptation of society to this evolution, promoting more ecologically correct, economically viable, socially fairer and culturally more diversified ways of acting, that is, that can contribute to a more sustainable society (Dovers & Handmer, 1992; Mensah, 2019).

This need to invest in a more sustainable society was highlighted and ratified by the countries in the United Nations General Assembly in September 2017 (United Nations, 2019), with the definition of the priority for Sustainable Development Goals (SDGs)—2030 Agenda, "the future we want", among which Mensah (2019) highlights:

"Eradicate poverty and hunger, guaranteeing a healthy life;

Universalize access to basic services such as water, sanitation and sustainable energy;

Support the generation of development opportunities through inclusive education and decent work;

Foster innovation and resilient infrastructure, creating communities and cities able to produce and consume sustainably;

Reduce inequality in the world, especially that concerning gender;

Care for the environmental integrity through combatting climate change and protecting the oceans and land ecosystems;

Promote collaboration between different social agents to create an environment of peace and ensure responsible consumption and production" (Mensah, 2019, p. 11).

To meet these goals, among the strategies to be adopted, the need to deepen individuals' literacy levels stands out. This concept should be understood not only in the strict sense of skills to read and write functionally but as a broader concept of ways to deal with and understand new and emerging tools for reading reality and an increasingly digital society (Pilgrim & Mart ñez, 2013).

Thus, we increasingly live simultaneously immersed in physical interactions and in a world where the digital dimension is present at various levels, such as the social, economic and political ones. In this context, the relationship of sustainability in a digital society attained through digital literacy and sustainability is critical to achieving an integrated and integrating social development. This relationship

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will be discussed ahead.

2. Methods

This position paper aims to discuss, in a reasoned manner, the promotion of sustainability in a digital society. To this end, the results of a literature review will be mobilized, as well as our 20-year experience in research teaching, without forgetting the publications we have on similar topics, which will be used to substantiate and justify the arguments put forth herein, whenever heuristically relevant.

3. Literacy in the Promotion of Sustainability in a Digital Society

Over a long period, literacy was understood as the ability to read, write and functionally use these two skills in everyday life. However, as Pilgrim and Mart ñez (2013, p. 60) maintain, "In the 21st century, the definition of literacy has increasingly reflected the ability to use technology for gathering and communicating information. The International Reading Association (IRA) stated that the literacies used by today's students are much different from those of their parents or even those of students from just a decade ago (IRA, 2009). The IRA position statement reported that in order 'to become fully literate in today's world, students must become proficient in the literacies of the 21st century technologies'".

Recently, UNESCO (2019a) published the Five Laws of Media and Information Literacy, considering that the "empowerment of people through Media and Information Literacy (MIL) is an important prerequisite for fostering equitable access to information and knowledge and promoting free, independent and pluralistic media and information systems" (para. 1). These five laws are understood as a reference that should be adopted by educators as a way to leverage the knowledge and skills of society for an increasingly demanding digital world, adding to the training of people that become better prepared for contemporary life and work (Figure 1).
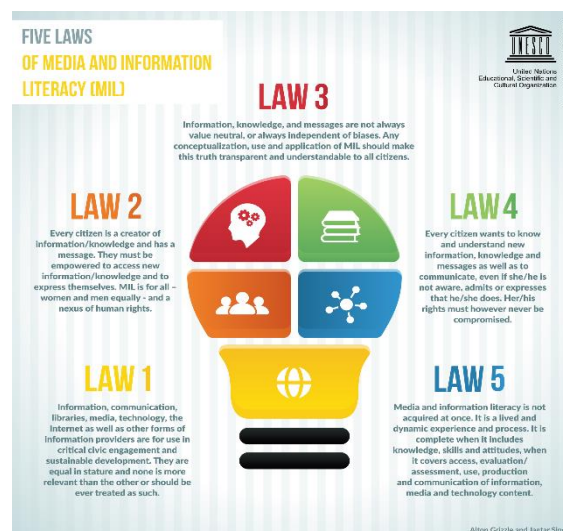
**Figure 1. Five Laws of Media and Information Literacy—UNESCO (2019)**

Source: UNESCO (2019a).

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However, the concept of literacy goes far beyond reading, writing and the digital world. Nowadays, this concept covers a wide range of areas. At the same time, the concept of sustainability emerges, which is a very fashionable topic today (Mensah, 2019; Serpa & Sá, 2019). This complex concept, which has many meanings, is defined by Sartori, Latrônico and Campos (2014, pp. 10-11) as "a principle applicable to systems. Open systems, to interact with society-nature, involving industrial systems (transport, production, energy, etc.), social systems (urbanization, mobility, communication, etc.) and natural systems (soil, atmosphere, aquatic and biotic systems, etc.), including information flows, goods, materials, waste. That is, sustainability involves an interaction with dynamic systems that are constantly changing and need proactive measures".

This concept involves, *per se*, the notion of development and is mostly linked to the concept of sustainable development. But what is the specific scientific definition of sustainable development? Mensah (2019) sustains that,

"Sustainable development centres around inter- and intragenerational equity anchored essentially on three-dimensional distinct but interconnected pillars, namely the environment, economy, and society. Decision-makers need to be constantly mindful of the relationships, complementarities, and trade-offs among these pillars and ensure responsible human behaviour and actions at the international, national, community and individual levels in order to uphold and promote the tenets of this paradigm in the interest of human development" (pp. 1-2).

Sustainability is the result of a tripod, based on social sustainability, economic sustainability and environmental sustainability (Serpa & Sá, 2019), which Mensah (2019, p. 8), citing Wanamaker (2018), presents as follows (Figure 2):
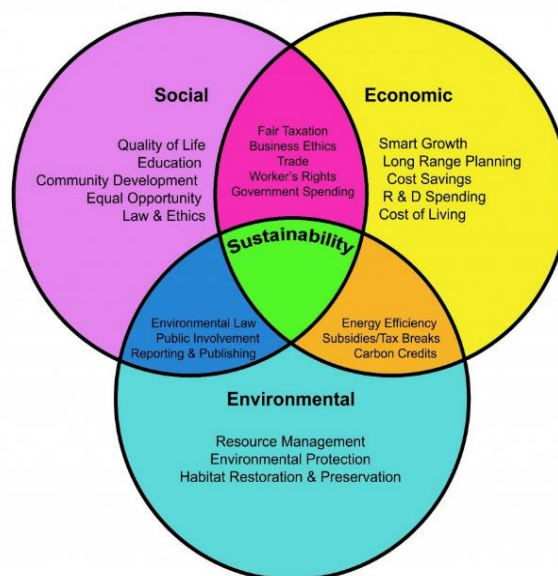
Figure 2. Relationships between Social, Environmental and Economic Sustainability

Source: Wanamaker (2018), cited in Mesah (2019, p. 8).

Serpa and Ferreira (2019a) summarize well these three dimensions. According to the authors,

"The economic dimension of sustainability is related to the profit component, with issues such as economic growth, the efficient use of resources and the financial viability of business companies. The environmental dimension focuses on fighting pollution and the efficient and judicious use of natural resources. The social dimension regards issues such as equal opportunities, justice in wealth distribution, ethical behaviour, equity and justice" (p. 7).

Considering, therefore, that the objective of sustainability and sustainable development is based on a search for multiple answers to the challenges of the economy, the environment and society, as well as institutional issues, including the consequences of present actions in the future and the awareness and involvement of society (Ansari & Stibbe, 2009; Sartori et al., 2014), the role of literacy or literacy as a set of strategies that allow looking at these challenges in a more comprehensive, focused, critical and proactive manner seems to be essential.

Thus, we speak of a literacy for sustainability, defined by Ansari and Stibbe (2009) as "the ability to reflect critically on both self and society, and rewrite both self and society in ways that increase human health and wellbeing while simultaneously protecting or enhancing the natural systems which support life" (p. 427). This literacy for sustainability entails the understanding and apprehension of a wide range of levels of intervention and action, competencies and skills that intertwine and imbricate each other and that include the necessary participation of all social agents in the process. It is unquestionable that, as Ansari and Stibbe (2009) state, "Exploration of sustainability literacy is something that can never be complete, particularly since the changing conditions of the world will continuously require new and different skills" (p. 437), which reinforces the idea of development and constant change that these processes intrinsically and extrinsically involve.

Some of these literacy skills for sustainability intersect with the digital world, which, given its strong dissemination and influence in contemporary societies, is a powerful element and tool for the construction of social sustainability.

In a process of *equity* and *justice*, individual participation and community engagement (Bouzguenda, Alalouch, & Fava, 2019; Mensah, 2019) in social and political life are two of the determining elements for the existence of social sustainability in the contemporary digital society. Serpa and Ferreira (2019a) argue that,

"New technologies, with a significant weight of the digital component, are increasingly present in all spheres of society. There is widespread digitisation of the processing, dissemination and conservation of information in its various modalities, together with the development of coding activities (software), as key activities in the development of economic systems. Furthermore, there is broad access to global information networks, with interactive functioning and multimedia content, fostering innovation processes in terminal equipment, in the development of new software and in the creation and updating of databases. Digital technological processes are at the basis of the on-going shift in the processes of design and development of products and systems, as well as in educational and entertainment services"

(p. 3).

However, several authors highlight that, in the digital society that surrounds us and which increasingly influences multiple factors of societal life (Ferreira, 2019; Gladden, 2019), even the very social interactions—as the virtual world has a growing relevance in identity (re)definition (Serpa, & Ferreira, 2018; Serpa, 2019)—, there are clear inequalities, for example, in the access and use of these instruments, in a context where the digitization of information and production seem unavoidable. An example of this can be found in *Society 5.0*:

"By proposing a deepening of the potential of the individual-technology relationship in fostering the improvement of the quality of life of all people through a super-intelligent society, Society 5.0 is an extremely recent concept as a guide for social development and that can have a profound impact on societies at all levels, such as in terms of the quality of life and sustainability" (Ferreira & Serpa, 2018, p. 26).

Gladden (2019), an excellent specialist on the topic of the man-digital relationship, highlights the ambiguity and the doubts emerging from this Society 5.0 in general, but its implementation is unavoidable, with profound influences at the micro, meso and macrosocial levels (Serpa & Ferreira, 2019b).

In this context of an increasingly digitized world, the promotion of various skills is essential, both digitally and in terms of sustainability, but, above all, with particular attention to digital literacy, as,

"the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process" (Martin, 2006, p. 155; in Santos & Serpa, 2017, p. 91).

Digital literacy is, thus, central to the development of sustainable literacy (Serpa & Sá, 2019), inasmuch that "the knowledge, skills, and mindsets that help compel an individual to become deeply committed to building a sustainable future and allow him or her to make informed and effective decisions to this end" (Décamps et al., 2017; in Serpa & Sá, 2019, p. 103).

In the promotion of these two types of literacy (digital and sustainability), the mobilization of different scientific disciplines (Serpa, Ferreira, & Santos, 2017; Serpa & Sá, 2019) is a relevant factor to be considered, given that digital acts are not socially natural, neutral or automatically equitable (Gladden, 2019; Mensah, 2019).

Thus, digital and sustainable literacy improvements must necessarily involve the training of children, youth and adults (Ansari & Stibbe, 2009; UNESCO, 2015). Individuals need to be prepared to deal with the demands of today's societies, insofar that more sustainable societies are societies that "can only be accomplished if learners gain the skills they need for surviving and thriving in the twenty first century" (Ansari & Stibbe, 2009, p. 348).

In any case, literacy understood in its broadest sense and covering sustainability and the digital, as

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mentioned by Irina Bokova, Director-General of UNESCO, on the occasion of the 2015 UNESCO Literacy Award Laureates announcement, 22 July, 2015, is,

"Indispensable to raise awareness and gather necessary grass roots participation in our efforts to improve the way we care for our planet and manage its resources. This transformation can only happen if society's most vulnerable youth and adults acquire basic literacy skills that equip them with the knowledge and confidence to improve their own lives and build more resilient communities" (UNESCO, 2019b, para. 3).

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