EDUCATION AND NEW TECHNOLOGIES BEYOND THE PANDEMIC

EDUCAZIONE E NUOVE TECNOLOGIE OLTRE LA PANDEMIA

Giovanni Arduini[a]

[a]*Department of Humanistic Studies, University of Cassino and Lazio Meridionale, Italy*

g.arduini@unicas.it

Abstract

This work focuses on the elements that can lead to innovation in the training system, finding them in this case in new technologies. Starting from the very concept of learning, we are aware that the school we are preparing is aimed at a generation that was the first to take advantage of the Internet and related tools from early childhood. The school must turn to the so-called Z generation, which has compact and economical technological tools at its disposal, and which, when entering the world of work, will find digital technologies as a predominant aspect of all career paths. The school cannot limit itself to transmitting notional contents, but promoting a meaningful learning that acts as a link between old and new knowledge. In support of this change there are Information and Communication Technologies, which make it possible to amplify expressive skills and to develop transversal skills with a view to lifelong learning.

Il presente lavoro ha come focus gli elementi che possono portare all'innovazione del sistema formativo, trovandoli nella fattispecie nelle nuove tecnologie. Partendo dal concetto stesso di apprendimento si ha la consapevolezza che la scuola che stiamo preparando sia rivolta ad una generazione che per prima ha potuto usufruire di Internet e degli strumenti ad esso correlati fin dalla prima infanzia. La scuola deve rivolgersi alla generazione cosiddetta Z, che ha a disposizione strumenti tecnologici compatti ed economici, e che nell'affacciarsi nel mondo del lavoro troverà le tecnologie digitali come un aspetto preponderante di tutti i percorsi di carriera. La scuola non può limitarsi a trasmettere contenuti nozionistici, ma promuovere un apprendimento significativo che faccia da raccordo tra i vecchi e i nuovi saperi. A supporto di questo cambiamento ci sono le Tecnologie per l'Informazione e la Comunicazione, che permettono di amplificare le capacità espressive e di far sviluppare abilità trasversali nell'ottica del lifelong learning.

Keywords

ICT; Literacy; Digital Learning Environments.
TIC; Literacy; Ambienti di apprendimento digitale.

Introduction

The health emergency linked to Covid-19 has brought to the fore how the enormous impact of technology has radically changed not only the way of learning, but also the way of thinking in general: children are more inclined to type knowledge parallel and non-sequential, thus being able to perform multiple tasks at the same time. However, this multitasking often corresponds to a decrease in efficiency and a propensity for approximation.

From the different experiences linked to the massive use of distance learning, it has emerged even more that students today prefer a visual modality and a study declined through images, much more immediate than a written text or an oral lesson.

In order to implement these measures, the preparation of an authentic learning context different from the common classrooms is required; we are talking about a laboratory space where students can have the opportunity to build and train skills in an active and cooperative atmosphere.

The use of ICT can help reorganize the learning space and increase motivation, increase self-esteem, and encourage participation, in a flexible and truly inclusive environment that can respond to everyone's different needs. A creative and intelligent use of new technologies can contribute to increasing not only cognitive skills, but also cooperation and interpersonal communication and, for this reason, continuous training is necessary for teachers to make their profession suitable for the role of leadership that the new generations expect.

1. Learning Environments

In order to increase a meaningful type of learning, it is necessary to enhance learning "environments" in which pupils are not only no longer simple listeners but invited to act, appropriately guided, to build their own knowledge.

In recent years, in fact, a greater critical awareness in reflection in the educational field and the commitment, considerable and largely voluntary, supported by the teaching staff in the direction of digitization, on the one hand, and the evolution of technologies towards the field personal and social, on the other hand, have outlined a possible moment of overcoming the ambivalent relationship established between school and ICT, a “reasonable consensus on some possible meeting points between the potential of technology and methodological quality” (Bonaiuti, 2009).

Technology disappears - it becomes transparent according to Norman's happy expression: "the best technology is that which cannot be seen" (Norman, 1999) - and moves its own bulky physicality into the background to bring the interface, the appearance to the fore manipulative, establishing continuity and familiarity (fundamental for teachers and students) with known tools used in different contexts.

In this context, the key word of mediation is affirmed, in the sense of the "translation" of cultural objects (forms and texts) into environments and tools that allow their functional articulation, and in the broadest sense of sharing experiences, creating community of practice.

In recent decades, the Italian school has experienced its own "production revolution": alongside the use of ready-to-use content and materials, the possibility of autonomous production of digital objects in various forms (e-books, apps, Digital Tales, videogames , Learning Objects) has aroused lively interest, helping to redefine the role of the school compared to other actors (such as publishers). Individual schools have interpreted the role of prosumer in an original way, as Alvin Toffler (Toffler, 1981) defined the user who, freeing himself from the classic passive role, takes on a more active role in the production process.

The autonomous production of didactic material and the elaboration of original contents is today, thanks to the massive use of technologies, a widespread reality in schools of all types and levels, and has significantly contributed to the enhancement of the creative, playful and sensorimotor dimensions of learning experience. The dimension of the pupil-spectator denounced by Dewey - "in schools it is too often thought that pupils are there to acquire knowledge from theoret-

ical spectators, as minds that take possession of knowledge by means of the direct energy of the intellect" (Dewey, 1923) - now seems to be outdated in favour of a "co-producer" pupil and first critical analyst of the artifacts he himself produced, who is not satisfied with being the end user of an app, a site, a videogame, but who he has the will and skills to design and build one, and to evaluate those produced by his peers.

James Paul Gee summarizes: "Many young people today also design and produce media, often collaboratively, in a popular culture that stresses production and participation, not just consumption and spectatorship" (Gee & Levine, 2009).

2. From skills to literacy

In this context, it is appropriate to adopt a unitary approach to the concept of literacy, developing its different and complementary declinations. While the term "competence" refers to different meanings in different disciplinary fields and methodological implications, the concept of literacy, originally referred to the instrumental ability to read and write, has rapidly developed in the last decade, even outside the Anglo-Saxon world. The meaning of literacy has gradually acquired broader connotations, coming to indicate a complex set of critical skills that allow people to express, explore, question, communicate and understand a flow of ideas between individuals and groups.

The transition from competences to literacy implies a further advance towards a holistic conception of the human being and his interaction in the world, as the key to a full and satisfying life.

The term literacy implies a continuum, it refers to a plural scenario that does not limit literacy to a limited period of life and training, but suggests a continuous evolutionary process, whose constitutive dimensions are both the acquisition and exercise of skills, as well as the interactions that take place between these skills and the environmental and social contexts. Literacy has an effective power (dynamic) of intervention with respect to its own object, together with a metacognitive part, a capacity for critical and conscious reflection on one's own effectiveness. “Literate” knowledge is a critical, aware and expert know-how.

The current context calls into question the idea of different "literacies" as different sets of skills in different fields of knowledge in favor of a unique, but more global and complex, meaning of literacy as the ability to "read" and "write" the own living environment. In this sense, the different skills involved in literacy (strictly speaking), numeracy, physical literacy, digital literacy, music literacy are to be understood not as separate elements that can be accumulated in an additive logic, products of a targeted and sectoral intervention, but as interconnected elements that they must be considered in the perspective of an active and global process.

3. Beyond presence and distance

Given that technology is not synonymous with immaterial, and that the virtual dimension actually achieved in distance learning was a more or less conscious choice, dictated by the will to substitute the "traditional" model, the "television" model adopted risks eliminating an embryonic but promising path in our educational system, on the physical and manipulative dimension of technologies, on FabLabs, on Maker Culture, from 3D printing to microcontrollers passing through coding. This path had successfully invested in kindergarten and primary school, thanks also to some targeted projects carried out, for example, by Indire.

The recent attention of the pedagogical community to tinkering, making, DIY (Do It Yourself) approaches does not involve only the most visible and debated technical characteristics, but involves a complex and interconnected game of social, cultural, ethical and political elements, which deserve full attention as possible alternatives to the deterministic tendencies that seem to dominate the main current technical paths of invention, production, distribution, use and even disposal.

The Technology = Distance equation, with the corollary of immateriality and virtuality, risks overwhelming what, in the words of Obama, is a process of democratization of technology, supported by the possibility of being "the makers of things and not just the consumers of things".

Many experiences gained in the period of the pandemic have helped to outline an unprecedented point of view on the dynamics of teaching-learning, to grasp this point of view it is necessary to abandon the interpretation of digital learning experiences as a surrogate, an incomplete edition of experiences " real ", arbitrarily identifying the boundary between real and virtual in digital devices. This reductive interpretation prevents us from considering that the supposed absence of interactions and relationships in the digital environment does not depend on a "technological" dimension but on a methodological (and even earlier ideological) structure which simply held that those interactions and relationships do not were possible, and therefore, even when they took place, he did not consider them and certainly did not favor them. It ultimately prevents us from considering how digital dynamics redefined social interactions long before pandemics and lockdowns made it clear.

The recognition of the physicality of learning (and teaching) can only please those who have always maintained that learning is, trivially, a matter of bodies that learn: not just brains, but skin, senses, hands, feet, pens and notebooks, hard drives and smartphones. It seems urgent today to ask ourselves how to consciously recover the body (and space, and time) for teaching mediated by digital devices. It seems pertinent here to underline how this need applies in both directions, that is, it is valid both in rethinking the dynamics of traditional learning environments that evolve towards hybrid forms, and in rethinking the environments dedicated to e-learning, favoring a greater immersiveness of the interaction, perhaps recovering that idea of natural interface (the voice, the gaze, the gesture) which is acquiring full citizenship in other forms of digital interaction. Ultimately, we are faced with a possible (desirable) rewriting of the concept of blended learning: the opportunity is that it is not hours in the presence and hours at a distance that are mixed, but the learning methods and experiences themselves, recovering the concept of ubiquitous learning, cleansed by the corporate and advertising formulas of "learning always and in every place" and based on the observation that "the circumstance by which every natural or social event, every behavior, even the slightest, can be automatically registered and at very low costs, has completely changed the world we live in "and has revolutionized the very nature of production that characterized the industrial world, whose logics, even in the domain of formal education, are evidently obsolete.

References

Bonaiuti, G. (2009). Didattica attiva con la LIM: metodologie, strumenti e materiali per la lavagna interattiva multimediale (Vol. 3). Edizioni Erickson.

Calvani A. - Rotta M., Fare formazione in Internet: manuale di didattica on-line, Erickson, Trento 2000.

Calvani A. - Vivanet G., Tecnologie per apprendere: quale il ruolo dell'Evidence Based Education? «Journal of Educational, Cultural and Psychological Studies», 10, (2014), pp. 83-112.

Caruana F. - Borghi A., Il cervello in azione. Introduzione alle nuove scienze della mente, Il Mulino, Bologna 2016.

Dewey, J. (1923). Democracy and education: An introduction to the philosophy of education. macmillan.

Gee, J. P., & Levine, M. H. (2009). Welcome to our virtual worlds. Educational leadership, 66(6), 48-52.

Norman, D. A. (1999). Affordance, conventions, and design. interactions, 6(3), 38-43.

Rivoltella P.C. - Rossi P.G., Il corpo e la macchina. Tecnologia, cultura, educazione, Editrice Morcelliana, Brescia 2019.

Roncaglia G., L'età della frammentazione: Cultura del libro e scuola digitale, Laterza, Roma-Bari 2000.

Toffler, A. (1981). Education and the Future: An Interview with Alvin Toffler. Social Education, 45(6), 422-26.