

La «cultura tecnologica» per fondare il concetto di esperienza nel pensiero in John Dewey. Una interpretazione di Larry Hickman

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Sommario

Larry Hickman è un interprete fondamentale del pensiero di John Dewey. Il suo lavoro è stato un punto di riferimento per la dottrina deweyana e anche per l'idea di un nuovo possibile paradigma di «cultura tecnologica». In questo articolo, cercherò di concentrarmi sull'idea espressa nel capitolo 5 intitolato «Educazione alla tecnoscienza per un curriculum permanente» del libro di Hickman *Strumenti filosofici per la cultura tecnologica. Mettere al lavoro il pragmatismo* (2001), applicata al problema contemporaneo della scuola.

In particolare, l'idea di Hickman di «cultura tecnologica», ispirata al pensiero di Dewey, è essenziale per il concetto di un modello di scuola inclusivo, che rappresenta uno sviluppo della scuola democratica teorizzata da Dewey durante la sua esperienza all'Università di Chicago. In questa prospettiva, analizzerò l'idea di Hickman di «cultura tecnologica» applicata all'educazione, la centralità dell'educazione su questo concetto in due saggi del giovane Dewey, il modello inclusivo della scuola contemporanea, basato sul rapporto tra cultura umanistica e digitale, fondato sulla teoria della «cultura tecnologica».

Nelle mie conclusioni cercherò di dimostrare che il concetto di «cultura tecnologica» potrebbe essere la matrice per progettare una possibile didattica con l'IA nella scuola contemporanea.

Parole chiave

John Dewey, Larry Hickman, Cultura tecnologica, I.A. Didattica, Scuola inclusiva.

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The «Technological Culture» to Establish the Concept of Experience in John Dewey's Thought. An Interpretation by Larry Hickman

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Abstract

Larry Hickman is a fundamental interpreter of John Dewey's thought. His work has been a reference point for Deweyan Scholarship and also for the idea of a new possible paradigm of a «technological culture». In this paper, I will try to focus on the idea expressed in chapter 5 entitled *Tecnoscience education for a lifelong curriculum* in Hickman's book *Philosophical Tools for Technological Culture. Putting Pragmatism to Work* (2001) applied to the contemporary problem of school.

In particular, Hickman's idea of «technological culture», inspired by Dewey's Thought, is essential for the concept of an inclusive model of school, which is a development of democratic school theorized by Dewey during his experience at Chicago University. In this perspective, I will analyze Hickman's idea of «technological culture» applied to education, the centrality of education about this concept in two essays of young Dewey, the inclusive model of contemporary school, based on the relation between humanistic and digital culture, founded on the theory of «technological culture».

In my conclusions I will try to demonstrate that the concept of «technological culture» could be the matrix to project a possible didactics with AI in the contemporary school.

Keywords

John Dewey, Larry Hickman, Technological Culture, A.I. Didactics, Inclusive School.

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The «Technological Culture» to Establish the Concept of Experience

Analyzing John Dewey's concept of experience, Larry Hickman develops the concept of «technological culture». The central idea of this Deweyan interpretation is based on the fact that experience can be realized in human activity as the development of philosophical tools that must construct a technological culture. «Technology in its most robust sense, then, involves *the invention, development and cognitive deployment of tools and other artifacts, brought to bear on raw materials and intermediate stock parts, with a view to the resolution of perceived problems*» (Hickman, 2001, p. 12).

Indeed, the interpretation of «technological culture» establishes the meaning of experience, which is expressed in the relationship between the individual and the environment, inspired by the theory of the Reflex Arc Concept. In order to demonstrate this problem, it is necessary to understand the central theme of the Reflex Arc Concept that has developed since the 1886 text *Soul and Body*. The text on the Reflex Arc Concept, considered the *Manifesto of Pragmatism*, determines the foundation of the concept of experience. In fact, Deweyan reflection considers the ancient dualism between soul and body as the stimulus-response relationship. However, «the so-called response is not merely *to* the stimulus; it is *into* it» (Dewey, 1896, p. 98).

The Reflex Arc represents a coordination that determines the meaning of the experience. In fact, the stimulus-response relationship demonstrates that the prevalence of the physical over the psychic does not exist, but a continuity is created between the two aspects of reality that does not cancel one element with respect to the other.

«Thus the reflex arc formulation is neither physical (or physiological) nor psychological; it is a mixed materialistic-spiritualistic assumption» (Dewey, 1896, p. 104). There is no separation between the stimulus and the response, but this dualism must be considered an entire act that is oriented towards a sensory-motor coordination aimed at achieving an end.

In fact, what Dewey tries to represent is the expression of a continuous act that links sensation to action, and at the end of the essay, the philosopher makes it clear that this sensory-motor coordination must also be linked to changes in the situation and the environment.

In this sense, at the end of the essay, the statement that awareness of sensory-motor coordination must be adapted to the environment by solving problems with tools is important, as «the change is regarded as simply a means in solving a problem, an instrument in reaching a more satisfactory coordination» (Dewey, 1896, p. 108).

The concept of interest represents the deepest root of the concept of experience. The experience is based on the sensory-motor coordination that coordinates

the sense of action, the interest in the will, the action of the tools, linguistic, logical and practical on the environment. Hickman defines this relation «technological culture».

This dimension determines the meaning of the experience, but also the action of the individual towards the experience that will determine the sense of the investigation and the method of intelligence. The fundamental feature of the theory of the Reflex Arc is the constitution of the experience linked to the adaptation of the individual.

For this reason, the profound meaning of the experience is to allow the use of tools to adapt more and more by transforming one's individuality. This is why education becomes the central issue of the Deweyan reflection.

The Centrality of Education in Human Experience

Two Deweyan texts in which is possible to understand the relation between experience and education are *Ethical Principles Underlying Education* of 1897 and *My Pedagogic Creed* of 1897. I will try to focus on some aspects of these works in relation to the theme of experience as «technological culture». The Reflex Arc presents the continuity of sensory-motor coordination between sensation and action linked with the ethical principles and the pedagogic creed.

The fundamental aspects of Dewey's educational action go back to the theme of ethical principles. Every ethical theory has a double aspect, the psychological and the sociological. This double dimension of ethics clarifies the importance of educating the student considered as an expression of continuity between one generation to another.

«The child must be educated for leadership as well for obedience... The child is an organic whole, intellectually, socially, morally as well as physically» (Dewey, 1897, p. 58).

Education must be continuously adapted to the changes in contemporary industrial society. «Moreover, the conditions of life are in continuous change. We are in the midst of a tremendous industrial and commercial development. New inventions, new machines, new methods of transportation and intercourse are making over the whole scene of action year by year. It is an absolute impossibility to educate the child for any fixed station in life» (Dewey, 1897, p. 59). Accordingly, school must present itself as a social community that develops the fundamental principles of the school, which must be considered a community of life.

Therefore, the student's activity must be adapted to the issues of the school, which must connect educational issues to social issues. This is why the scientific, historical and geographical questions represent the fundamental contents of the school, which is based on principles of nature and social action.

In fact, the school proposes itself as a community of life, which must be considered a social institution that needs methods and contents open to social dimensions. In this sense, it is essential to define the character of the individual that represents his psychological dimension.

The character of the individual in Dewey represents the expression of the relationship between the intellectual and emotional dimension. In this sense, the principles that govern the development of education must necessarily evolve in their application. «What we need in education more than anything else is a genuine, not merely nominal faith in existence of moral principles which are capable of effective application. We believe that, so far as the mass of children are concerned, if we keep at them long enough, we can teach reading and writing and figuring» (Dewey, 1897, p. 82).

In this perspective, *My Pedagogic Creed* (1897) represents a clear *Manifesto* of the link between the theory of the Reflex Arc and its application to social issues. All of this is the basis on which Dewey will build the educational principles in *The School and Society* of 1899 and in *Democracy and Education* of 1916. The five articles of *My Pedagogic Creed* also represent a fundamental aspect of Dewey's theory of experience. First, education must be considered the expression of the individual's experience in the complexity of the world.

«I believe that the individual who is to be educated is a social individual, and that society is an organic union of individuals. If we eliminate the social factor from the child we are left only with an abstraction; if we eliminate the individual factor from society, we are left only with an inert and lifeless mass» (Dewey, 1897, p. 86).

In this sense, school must develop a «community life», in which belonging to the culture of the past is linked to the specific situations of the family and society that need to be shared. Accordingly, it is important not to separate the subjects of study from those that are the specific characteristics of the society.

Education is life and, therefore, there cannot be a succession of topics of study, but it is necessary for education to shape the personality of each student by combining the scientific dimension with the artistic and communicative one.

«If education is life, all life has from the outset, a scientific aspect; an aspect of art and culture and an aspect of communication» (Dewey, 1897, p. 91).

Education, therefore, must be conceived as a continuous reconstruction of experience as well as a continuous reconstruction of the ethical value that finds its own aims within itself. If education must necessarily build values from experience, it is necessary an action that cultivates the interests and developments of each student's potential. The school in which education develops is necessarily a school that must be linked to social progress and must orient it towards the best.

In other words, Dewey expresses in these two texts the profound link between the individual-environment relationship, as defined in the theory of the Reflex Arc, and education. From this premise three fundamental issues are linked to the concept of «technological culture» defined by Hickman.

First, it is necessary to understand the importance of continuity of thought with action and the consequent centrality of the ability to adapt to various environmental situations.

Secondly, the concept of education is fundamental, it oscillates between the psychological and sociological dimensions of the individual and reconstructs experience through education.

Thirdly, it is interesting to note how Dewey links the concept of science to that of art and this link may be within the concept of experience the meaning of «technological culture» that Hickman identified.

The Inclusive School Model Based on the Concept of «Technological Culture». A Possible Project for a Didactics with AI

Experience for Dewey is this intertwining of scientific and art creative dimension. The concept of «technological culture» hypothesized by Hickman is fundamental to understand the meaning of the contemporary inclusive school.

It is necessary to specify that the arts and technosciences are distinct but essential to reconstruct experience. The method of intelligence that guides philosophy to reconstruct experience needs the profound relationship between the arts and the techno-sciences.

In other words, the method of intelligence connects the aesthetic dimension of human activity to the specific technological dimension that intervenes in human and social reality. In this sense, it is interesting to analyze the 5th chapter of Larry Hickman's text *Philosophical Tools for Technological Culture. Putting Pragmatism to Work* (2001) entitled *Technoscience Education for a Lifelong Curriculum*.

Technoscience is fundamental in order to create that widespread scientific mentality to improve society and protect it from what are some anti-scientific characteristics, such as, for example, fundamentalism, misinformation and even a mentality that hinders the application of techno-sciences, like the Pandemic has recently demonstrated and the dramatic situation of the wars in Ukraine and Middle East continues to demonstrate.

Hickman's analysis is logically placed at the beginning of the 21st century and is oriented towards enhancing the importance of Enlightenment technoscience, against any form of religious or political fundamentalism.

Teaching with a specific scientific attitude in school means removing any form of fundamentalism or disinformation.

First of all, Deweyan program envisages a «religious» attitude and not based on religion because even the science that solves problems must be based on ethical action that improves society.

A second aspect is based on the social improvement of human life. School must teach that technosciences are essential to improve the quality of human life and not just destroying it through environmental pollution and the use of sophisticated weapons to impose one's own interest.

«Technoscience is a moral enterprise because it is capable of influencing the goals and ideals by which people live» (Hickman, 2001, p. 113). As such, it is essential that technosciences are linked to the aesthetic and creative dimensions to build a more meaningful education at school. «Dewey consistently argued that it is one of the tasks of the technoscience of education to demonstrate the connections between the methods of the physical techno-sciences and other forms of cognitive activity, especially the arts, with a view to amelioration of public problems» (Dewey, 2001, p. 114).

The approach Hickman gave more than twenty years ago can be an interesting matrix to suggest the possibility of building an inclusive school model (D'Alonzo, 2020). The inclusive school, as is well known, is the school of each and every one. That is, a school that can allow everyone, from the best student in the class to the student with disabilities, to develop his or her own unexpressed potential. Then it is fundamental to plan an inclusive curriculum (Baldacci, 2010).

In fact, the democratic school of Dewey is the expression of the possibility of each student, as I have tried to demonstrate, to «reconstruct» his experience. The most appropriate way to reconstruct the experience is determined, in my opinion, in the model of «technological culture» identified by Larry Hickman's interpretation of Deweyan thought.

The contemporary school presents numerous dilemmas: the relationship between contents and methods (in Europe and also in Canada this debate is interpreted by the concept of competence in teaching and learning), the relationship between didactic action and the digital world, the organization of a balanced curriculum between humanistic and technological culture.

In this context it could be an important example of the concept of technological culture the use of AI linked to didactics. This relationship is fundamental (Pancioli & Rivoltella, 2023), to construct a new curriculum for an inclusive school. The possibility to apply the AI to education is the demonstration that the concept of «technological culture», inspired by Dewey, must be considered the central point to construct an inclusive school and a new model of laboratory school.

In fact, AI applied to didactics is a clear evidence that this relationship could determine some risks in its application (Moriggi & Pireddu, 2023), but at the same time is the only possibility to improve the system of education just to face the challenges of our century.

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