

DIFFERENZE

DIDATTICHE INCLUSIVE

8

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DIFFERENZE

DIDATTICHE INCLUSIVE



La différence est la légère, l'aérienne, l'affirmative

GILLES DELEUZE

La collana intende costituire un luogo di incontro tra riflessioni, esperienze e sperimentazioni che rappresentino le diverse declinazioni del concetto di inclusione nella scuola italiana e nel panorama nazionale ed internazionale della ricerca scientifica sulla Didattica Speciale. Il recente cambio di paradigma dall'integrazione all'inclusione, recepito anche a livello istituzionale, si configura come ulteriore tappa di una storia innovativa della didattica italiana e offre l'opportunità per un ripensamento della Didattica Speciale, a partire dall'idea di differenza come *singularità positiva* cara a Deleuze e dal riconoscimento del processo di insegnamento–apprendimento come sistema complesso adattivo, in grado di cambiare in seguito all'esperienza, composto da un numero elevato di parti interagenti in modo non lineare che danno luogo a comportamenti globali. Da questa prospettiva, la differenza appare non più come una *condizione liminare*, rispetto alla quale esclusione o integrazione si pongono come estremi di un unico *continuum*, ma come sintesi risolutiva della complessità, come complessità accessoria, “semplice” perché relativa alla situazione locale, come luogo di nascita di una singolarità che si stabilizza definitivamente attraverso la variazione. In questo quadro, il *focus* della collana sulla dimensione educativa e didattica rappresenta un *trait d'union*, una lente attraverso cui leggere ed interpretare una serie di interventi che, nel tentativo di rendere la complessità del fenomeno osservato, spaziano dall'ambito clinico e terapeutico alla riabilitazione, dall'aspetto politico–istituzionale alla dimensione sociale e antropologica della *differenza* in educazione.

La collana è *peer reviewed*.



Web content

Michele Domenico Todino

**Simplexity to Orient
Media Education Practices**

Preface by
Pierpaolo Limone





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www.aracneeditrice.it

info@aracneeditrice.it

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info@gioacchinoonoratieditore.it

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*To my sister, Carmen, and her family:
Corrado, Sarah, Andrea, Daniel,
Giulia, Elena e Francesco*

What magical trick makes us intelligent? The trick is that there is no trick. The power of intelligence stems from our vast diversity, not from any single, perfect principle.

Marvin Minsky, *The Society of Mind*

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Preface

by PIERPAOLO LIMONE*

The book of Michele Todino is a fresh novel in Italian the tific debate on Education, it has the merit of taming concepts and cultures foreign traditions in teaching reflection in a work that demonstrates originality and method. Dr. Todino is an IT engineer who after significant study and research experience abroad has chosen to direct his basic training in the field of scientific research on education technologies, he then attended a PhD in pedagogical–didactic disciplines at the University of Salerno and got into contact with a laboratory practice and innovative scientific literature. The complexity of an educational path that is reflected in the multiplicity of research interests traced in this work. A typical question of the international debate in recent years is: who is the Media Educator? It is answered with originality by the author analysing the peculiar dimensions of professional identity (which overcomes the crisis experienced by educators), specialized in education (design, interpretation, group management and knowledge of languages and methodology) and multimedia environments (which implies formal learning and extra–school contexts), in which teachers can bring our own innovation. The specific skills for the profession are also a field of inquiry: the Media Educator must have social, cultural, linguistic and semantic competences. From a vast number of social actors, emerges then the need to

* Full Professor of Media Education at the Department of Humanities, University of Studies of Foggia, Italy.

define a strong unifying paradigm that encompasses the specific sectorial instances in an interdisciplinary perspective.

The virtuous short circuit produced by studies on artificial intelligence, Berthoz's theory of simplicity and the European tradition of Media Education is evidenced in this research, by the profound comparative analysis proposed. Among the asymmetries still emerge the passive role of the recipient, the simplification of the differences of the public and the weight of the variables of cultural, social and family context on the effected by communication. The educational narrative links the concept of transliteracy to future perspectives of the use of robotics in the educational field, to the production of knowledge that orders the studied knowledge and intends to produce changes both at an individual and institutional level. Innovation by its nature is a process that cannot exist in the past, but lives between instances of the change of the present and continuous tension towards the future; such a complex look necessarily requires an inter- and multidisciplinary research model as reported in the present research, which place relevant emphasis on complex phenomena and widens the boundaries on matters of considerable importance. The author's work is very current and visionary, in fact, starting from the exposition of shared rules and approaches, he comes to formulate a new hermeneutic proposal, proposing simplicity as a unifying key to the complex didactic phenomena inherented in Media Education. The wish is to continue with further analysis undertaken the path by this contribution to benefit the international scientific community.

Introduction

Media Educator is a new professional figure that performs an educational and pedagogical activity that aims people to stand mass media (their nature, their techniques and their languages). Nowadays in many Italian and foreign universities, new teacher education includes one or more exams related in Media Education. Science literature and reportage propose an idea a robot that is often wrong and far from reality but becomes part the imagination of the people. In science fiction, robots of the look like humanoids and they can act and things like humans.

In this regard, Media Education wants to understand robotic devices to describe them to the future citizens that there will be able to understand the actual characteristics and are not based on incorrect information from cinemas. Some pertinent research questions highlighted in this work are therefore: 1) What does a Media Educator need to know? 2) What are the differences between a Media Educator and a computer programmer?

From the international literature emerge some differences, as obviously, between a Media Educator skills and a computer programmer skills. To a Media Educator is not required to: know how to program devices (typical of expert programmers) or know how to perform complex configuration (as a network system administrator use to do in his/her daily work hours).

Concentrating in this work that Media Educators won't be focused mainly on understanding devices and codes as computer programmers, but they will be focusing on other peculiar elements of the media such as social, cultural, linguistic and

semantic aspects (axes that generate the skills of a Media Educator).

These studies started with my curiosity aroused by the book *The Vicarious Brain, Creator of Worlds* by Alain Berthoz, Emeritus Professor at the Collège de France and Director of the Laboratory of Physiology of Perception and Action at the Centre National de la Recherche Scientifique (CNRS). That book shows that the human ability to think creatively and function in a complex world is the core of our intelligence and it is important to ask if also a machine can do it.

Thus, if people try to build an intelligent machine they faced with the human ability to think creatively, and function in a complex world. Berthoz, in his books, also talks about robots and highlights that humanoid robot must inspire confidence. Besides, the Professor at the Collège de France shows that each nations and culture have a different perception of robots. For example, in Japan, artificial creatures are perceived as benevolent while in Europe it is more difficult to admit that the humanoid can become a robot companion. Berthoz hypothesis is that it could depend on the image of our past and literature such as the golem, «a stone creature conceived to defend the Jewish community of Prague, who turned against his own people, or Doctor Frankenstein, persecuted by his own same» (Berthoz, 2015, p. 40) creation. Besides, Western countries are «dominated [by] the myth of man created by God, a man who does not have to equip himself with this power» (Berthoz, 2015, p. 40).

Another difficulty, emphasised by Berthoz, derives from an effect that robotics experts call uncanny valley, i.e. a “valley mysterious” (Mori, 1970). The problem is soon solved. The more we attribute a human aspect to a humanoid or one artificial creature (perhaps to a videogame avatar), the more it will be accepted and become familiar (Berthoz, 2015, p. 40). But the unexplainable, uncanny valley phenomenon, shows that from a certain threshold of resemblance, an inexplicable phenomenon arises: the character induces mistrust, even repulsion.

However, if we continue to perfect it, it will become acceptable again. Mori (1970, 2012) wrote:

To illustrate the principle, consider eyeglasses. Eyeglasses do not resemble real eyeballs, but one could say that their design has created a charming pair of new eyes. So we should follow the same principle in designing prosthetic hands. In doing so, instead of pitiful-looking realistic hands, stylish ones would likely become fashionable. As another example, consider this model of a human hand created by a woodcarver who sculpts statues of Buddhas. The fingers bend freely at the joints. The hand lacks fingerprints, and it retains the natural color of the wood, but its roundness and beautiful curves do not elicit any eerie sensation. Perhaps this wooden hand could also serve as a reference for design. (Mori, MacDorman & Kageki, 2012, p. 100)

Mori published the same article twice, in 1970 like a very pioneering idea and then in *IEEE Robotics & Automation Magazine* in 2012, with new images, due to the relevance of the topic. This perceptual “valley” leads robotics experts to give them humanoids an almost human aspect, but not too much, to stay within the confines of acceptability (Berthoz, 2015, p.41). All consideration of Mori and Berthoz united with the resolution of the European Parliament of 16th February 2017 with recommendations to the Commission on Civil Law Rules on Robotics increased my curiosity on this theme and they made me start to write this book.

Rules on Robotics and Media Education

1.1. Robotics and digital age

In the last decade convert pictures, photos, texts, sounds, telephone call, mail, and videos into a digital form, processed by computers, it will be a conclusive part of a process of full digitalization of human information. Nowadays Digital is an adjective very common but sometime a little bit difficult to understand from a technical point of view. The Oxford dictionary (en.oxforddictionaries.com) define the adjective “digital”

(of signals or data) expressed as series of the digits 0 and 1, typically represented by values of a physical quantity such as voltage or magnetic polarization.

The Oxford dictionary gives immediately this further information:

Relating to, using, or storing data or information in the form of digital signals. “Digital TV” “A digital recording”.

This could be a proof that define something as digital is easier that describe the process of digitalization of an information. This distance between how technology works and how it is possible to use technologies devices it is always a problem for EU legislators that should elaborate new laws and recommendations for European Countries to decide how to deal with

technological aspects such as artificial intelligence and robotics. Kaplan (2016), one of the “big” experts of robotics and artificial intelligence technology suggest:

Investments could be permitted and perhaps also certain expenditures, such as for the child’s education. (Kaplan, 2016, p. 135)

For this reason, it is important to go deep into this work, to understand why, in the future, artificial intelligence and robotics should have interaction and impact on education. Kaplan also tries to describe and define artificial intelligence (that is also the software part of many robots) finding some correlation with Gardner (2002) studies, he asserts:

There are many proposed definitions of artificial intelligence (AI), each with its own slant, but most are roughly aligned around the concept of creating computer programs or machines capable of behavior we would regard as intelligent if exhibited by humans. John McCarthy, a founding father of the discipline, described the process in 1955 as “that of making a machine behave in ways that would be called intelligent if a human were so behaving.” But this seemingly sensible approach to characterizing AI is deeply flawed. Consider, for instance, the difficulty of defining, much less measuring, human intelligence. Our cultural predilection for reducing things to numeric measurements that facilitate direct comparison often creates a false patina of objectivity and precision. And attempts to quantify something as subjective and abstract as intelligence is clearly in this category. Young Sally’s IQ is seven points higher than Johnny’s? Please find some fairer way to decide who gets that precious last slot in kindergarten. For just one example of attempts to tease this oversimplification apart, consider the controversial framework of developmental psychologist Howard Gardner, who proposes an eight-dimensional theory of intelligence ranging from “musical rhythmic” through “bodily-kinesthetic” to “naturalistic”. (Kaplan, 2016, pp. 1–2)

This concept of making computer programs and robots able to behavior as intelligent, when they are correlated people with ergonomic human-machine interface (Bonaiuti, Calvani, Menichetti, Vivanet, 2017) more in detail: the acquisition of knowledge in the ergonomic and cognitive field allows us to better understand the interactions that can be implemented