

# NEURAL EDUCATION

Knowledge Revolution in the Era of Connections



FABIO TOLEDO

## FOREWORDS

I met Fabio Toledo in 2016, during the submission of an innovative proposal on technology applied to education. The partnership has strengthened and was so successful that today all branches of the Anglo-Americano School have Technological Intelligence as a permanent subject, from Early Childhood Education to the 8<sup>th</sup> year of Elementary Education.

Since ancient times, when man was faced with the element that would change the history of civilizations forever – fire -, we went through a number of important changes and discoveries that promoted development and the conservation of human race to this day. However, the first of them is still considered the vital discovery.

The twentieth century saw the rising of a priceless asset, which, such as fire, has been expanding and applied in many different areas, transforming for good the way we see systems, the world, our peers: technology.

With a little creativity, we can imagine the accidents and trouble early men faced until they could master and use their new "tool" productively.

Likewise, we have been facing inconceivable obstacles because of the difficulty in dealing with the benefits and risks posed by technology. From key scientific discoveries to frauds and drastic changes in our interpersonal relationships, this emergence has been the source of studies, due to the pursuit of an increasingly profitable use of such technology.

This is the approach you will find in *Neural Education*. The book points to the relevance of ethical, sustainable connections, interaction between individuals and the construction of solid relationships. A vision that becomes crucial in a society immersed in the currently cold and distant universe of technological knowledge.

This work will surely provide the reader with a comprehensive view of the urgent need for social and technological integration, an invaluable experience of enrichment and growth!

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# 1. CHALLENGES AND OPPORTUNITIES IN CURRENT AND FUTURE SCENARIOS

With each passing day, everything is more modern, technological, interactive, globalized, dynamic and competitive. In our contemporary society, technology has led to great changes and is transforming the world into a huge global village. Information now crosses the planet in milliseconds. Traditional models, including business models, have become obsolete. The world reinvents itself by leaps!

The emergence of connectivity, the Internet, interactive technologies and automation has provoked many disruptions of paradigms in society. Traditional media such as newspapers, radio and TV has lost and keep losing space for social media. Traditional libraries are falling into disuse thanks to the convenience offered by Google and other search engines. Businesses that have been stable for many years, such as video rental companies, have lost space to an increasingly connected digital universe.

And what has happened to people who are not ready to face this new reality?

They are becoming "digital illiterates", or maybe more than that: they are "misconnected."

That is how we could call, for example, individuals who are incapable of self-managing their feelings and attitudes, left behind on the ongoing changes, who focus on individualized initiatives and ignore the increasingly synergetic, shared and cooperative scenario and who waive the right to live by escaping from reality through the virtual world and digital addiction.

Theorists with no practice, experience or works. People who just enjoy the life of others without fully living their owns. People who have memorized and shared sayings without understanding their essence, as they may have never experienced or gone through situations that they seem to think they are good enough to "judge." Citizens that may be clever in some ways, but are definitely not very wise. People who allow themselves to be manipulated to the point of posting increasingly poor, intolerant, judgmental content, perhaps even inconsistent with their own values.

Many human beings have unlearned to relate to one another and to live in society, thanks to the misuse of current technological resources, such as social media that, in theory, surprise, surprise, were designed to bring people together. One should also note the emergence of illnesses brought on by the excessive use of technology, which go beyond addiction, such as hearing impairment, spinal problems and cybersickness.

And who is there to blame? Technology and business of the modern world?

Technology, as well as other assets of the modern world, have good and bad sides. They can be used constructively or destructively. As it would be the case with a misguided autonomous learning of linguistic intelligence, the misguided development of technological, entrepreneurial and socio-emotional intelligences has brought serious implications for society.

Something has to be done to reverse this scenario, and education institutions play a key role. Flexibility, suitability and optimal connections are requirements and these skills can and should be developed in students.

## 2. THE ERA OF CONNECTIONS

I believe we are amid the transition from the Digital Era to the Era of Connections, the Age of the Connected World. The Digital Era, also known as the Information Age, refers to the period of great technological developments and the sharing of large volumes of data and resources that we have been living since the end of the 20<sup>th</sup> century. It is gradually giving way to an era where connections have become at least as important as technology or information itself.

These connections involve devices (or things, if you prefer) and fit into four categories:

- ✓ Intrapersonal;
- ✓ Interpersonal;
- ✓ Internet of Things (IoT);
- ✓ Environmental.

The Internet of Things has come to stay and concerns connected devices such as smartphones and automation and robotics platforms. Connecting devices to devices and to people through communication systems will generate an increasing volume of information and opportunities. One must guide the technological potential of students in a constructive manner.

Interpersonal connections are also more and more important, given the increasingly cooperative environment of the contemporary world. Proof of it is the emergence of businesses based on the creative and shared economy. Such connections are undergoing deep changes. Connecting with others is the key to apply our knowledge in a sustainable, empathetic, constructive, cooperative and synergistic way. It also allows establishing affective and trust bonds. They are like "bridges" that allow access to a range of opportunities for sharing knowledge, ideas, networking, services, business and more. This varies, among other factors, according to the level of commitment and depth of the bond established among individuals. And it is not about connecting at random, without observing principles and values, nor establishing a favor exchange network. One should seek ethical, responsible and truthful connections. Sustainable connections cannot be negotiated. Have you ever seen someone buy love, respect, affection,

admiration, trust, or gratitude? That is the way to build sustainable and mutual bonds!

In an ever-changing, increasingly competitive world where depression and anxiety have become the plagues of the century, avoiding self-sabotage, knowing how to manage crises, conflicts, adapting and balancing are key skills. Brazil is the country with the most cases of anxiety and depression, according to the World Health Organization. Intrapersonal connection with a focus on self-management, seeking self-knowledge and management of thoughts, emotions and attitudes, enables the development of skills, talents and hallmarks, which are increasingly required nowadays; what you can do and that no one would ever do as well as you do, at least not in the same way you would do it.

And we must not forget environmental connection! In the increasingly dynamic world in which we live, we must be connected to the environment, attuned to the reality and trends of the market and modern life, to be able to enhance the benefits of opportunities provided by the 21<sup>st</sup> century and to overcome its challenges. This needs to be done using a multi-sensory approach and through active listening, which allows us to establish an efficient dialogue

Finally, *knowing* is not enough to ensure the future: one must act and connect in the present, assertively! Please note that *connect* is here meant in a deeper manner than it seems. It concerns the need for interoperability, for relationship and not just the possibility of doing so. There is no point in having two devices connected to each other by a communication network if they do not speak the same language, use the same communication protocol, if they do not understand each other. Therefore, it is not enough to know people to build links and opportunities, we need to interact, create relationships, in a world where trust is everything.

To follow a successful trajectory in the Era of Connections, it is essential to have the courage to connect, as well as to know where and how to do it wisely, ethically, responsibly, sustainably and smartly! This should be applied since elementary school. After all, it is not enough just to raise the issue. It is necessary to turn certain thoughts and attitudes into a habit, to establish an entrepreneurial and innovative culture, to use a maker and STEAM approach, to combine theory with practice, as well as to develop and target intelligences and other aspects inherent to the ongoing knowledge revolution.

### 3. KNOWLEDGE REVOLUTION

The transition from the Digital Age to the Era of Connections can change everything we thought we knew and directly affect human behavior. Changes in the global scenario require adapting the citizens' "knowledge" to the global demands. Otherwise, we will have individuals excluded from opportunities, incapable of overcoming challenges imposed by modern life and professionals with skills and abilities incompatible with market demands. This would cause a serious crisis: the knowledge crisis.

Would we be talking about something futuristic or the crisis is already here? Are graduates prepared to deal with the challenges and opportunities of the modern world? Recruitment and selection departments are having their jobs cut out thanks to the "baggage" that these professionals carry with them since elementary school? How have these professionals dealt with technology? How have they managed conflicts and crises? How are their interpersonal relationships going? In considering the above issues, we may conclude that the crisis is already in place. It has just not become evident enough for us to perceive its severity.

According to a report prepared by the Exame Magazine, based on the analysis and translation of a report produced by the World Economic Forum, "The Future of Jobs: The Future of Jobs, Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution," 35% of the most demanded professional skills should change. Such changes are justified in the context of the so-called Fourth Industrial Revolution: the era of advanced robotics, automation in transportation, artificial intelligence and automatic learning. Yes, over the next four years these socio-economic, geopolitical, and demographic issues will have a direct impact on the labor world: whether in the emergence or disappearance of professions or in market-driven skills. Many of them are linked to actions that still cannot be taken by machines. The focus of the report is on the aspects in which we are still better than robots. "

We need to be able to deal with the ever-changing environment. New needs, means of learning, skills, fields of knowledge and content will surely arise.

Still according to Exame magazine's report, which addresses several aspects related to the knowledge revolution in the above-mentioned Era of connections, every professional in the modern world must have at least 10 skills:

- ✓ Complex issue resolution;
- ✓ Critical thinking;
- ✓ Creativity;
- ✓ People management;
- ✓ Coordination: coordinate their own actions according to other people's actions;
- ✓ Emotional Intelligence;
- ✓ Judging and decision-making capacities;
- ✓ Service-orientation;
- ✓ Negotiation;
- ✓ Cognitive flexibility: ability to create or use different sets of rules to combine or gather things in different manners.

In light of the above, I dare conclude this item with two statements:

- ✓ **The market of the future wants entrepreneurs, innovative and connected professionals, regardless of the role they perform: business owners, managers or employees**
- ✓ **In the modern world, highest-paid professionals will not be those who work hard, but those who add more value to the market**

## 4. NEURAL EDUCATION

Education institutions have a crucial role in the process of building their students' knowledge and in preparing them for modern life and the labor market. Old pedagogical practices have become obsolete to meet today's demands.

One must ensure that the academic qualification process, since elementary school, includes aspects that will guide the development of the students' intelligences according to the demands of modern life. It is necessary to adapt the scope and teaching methods to the reality of the 21<sup>st</sup> century.

In modern life, two attributes stand out: flexibility and adaptability. After all, in the dynamic environment experienced in the Era of Connections, ongoing changes are the only certainties we have!

In order to meet this demand and to build a new generation of full-stack, technological, venturer and socio-emotionally intelligent self-hackers, Neural Education arises.

Other than making reference to neuroscience applied to learning, the concept of Neural Education concerns educational systems that reinvent and continuously improve their methods, becoming increasingly effective, by learning from the multisensory stimuli coming from reality, from trends of the modern world and its stakeholders, with whom they are connected, just as neurons do in our sensory system during synaptic processes.

The approach therefore reflects the need to implement a continuous Research, Development & Innovation (RD&I) cycle, involving both intra and interinstitutional aspects and fully and multi-levelly engaging all stakeholders in the educational environment, each one according to their own skills, such as early childhood education institutions, elementary, middle and higher education institutions, partner companies, government agencies, among other bodies responsible for implementing public policies, guidelines, standards and learning methodologies, as well as their managers and pedagogical teams.

Despite the timelessness of Neural Education as a concept, the book will focus on opportunities, challenges and other aspects related to the Knowledge Revolution in the Era of Connections. Among other aspects, it addresses the need for the full development of technological and entrepreneurial intelligences in students, in addition to the social-emotional and other intelligences advocated by

Howard Gardner in the Multiple Intelligences Theory, so that they can follow a path of success in the current and future world, both in the short and mid-term. One must facilitate and establish the development of such intelligences in educational institutions. In order to clarify and facilitate the implementation of this and other important initiatives, the book's chapters will address subjects such as:

- ✓ Analysis of current and coming scenarios
- ✓ Challenges in making private education viable in Brazil
- ✓ Teaching environment and knowledge building in the contemporary world
- ✓ Aspects related to the targeting and development of technological, entrepreneurial and socioemotional intelligences in learners
- ✓ Implementation of gamification-based learning and the maker culture under the *STEAM* methodology in education institutions
- ✓ International benchmarking and disruptive innovation
- ✓ Case studies on the implementation of technological and entrepreneurial intelligence initiatives in the renowned schools *Colégio Teresiano* (CAP of PUC-RJ) and *Rede Anglo-Americano de Ensino*.

## 5. CONCLUSION

In today's increasingly technological, dynamic and competitive world, two attributes stand out: flexibility and adaptability. Such reality also applies to the education sector and its different stakeholders. It is necessary to adapt methods, concepts and academic tools to the reality of the 21<sup>st</sup> century. The misled development of technological, entrepreneurial and socio-emotional intelligences has caused serious consequences to society.

In the dynamic environment experienced in the Era of Connections, constant changes are the only certainties we have! In order to meet this and other demands, such as those regarding the knowledge revolution, the concept of Neural Education arises. In this book, this concept will be portrayed in an innovative, exclusive and practical manner.

Based on benchmarks and analyses of current and future academic, labor and education markets, the work suggests teaching environments, processes, courses, guidelines and tools capable of ensuring the effective construction of knowledge in the contemporary world. They are all part of the targeting and development of technological, entrepreneurial and socio-emotional intelligences among students and of the implementation of the gamification, maker and STEAM cultures into educational institutions.

This work adds value since its forewords. It was written by the renowned educational director of schools of the Anglo-Americano Education Network, Maria Angélica Mereb. She holds a degree in Education, specialized in psychopedagogy and has an over 40 years' experience in primary education. She worked as a teacher, counselor, coordinator and principal. Her career was completely dedicated to Anglo-Americano, an innovative and benchmark institution in Brazil, which envisages excellence in education for its students by encouraging them to apply innovation and entrepreneurship in practice.

The book also brings successful case studies, designed by education institutions with deep experience and reputation in the fields of knowledge described in the book. Through them, *Colégio Teresiano* (School of Application of PUC-RJ) and the Anglo-Americano Teaching Network will report their experiences regarding the implementation of the Technological & Entrepreneurial Intelligence subject into their curricula, as well as other related initiatives

Finally, the market requires entrepreneurs, innovators, technologically-efficient and connected professionals, regardless of the role they perform: business owners, managers or employees. Being a user is not enough; these professionals must know how to create new technologies, in an entrepreneurial

and full-stack manner. And more! There is no denying: highest-paid professionals are not those who work hard, but rather those who add more value!

And so the full-stack self-hacker generation arises!

The process of educating these "digital" students, born in the Era of Connections, needs to be different. Educational institutions must ensure the effective construction of knowledge in the contemporary world and Neural Education can be an important ally. More than establishing theories, the book illustrates them in a practical way. It also presents real case studies, published in a specific chapter by renowned Brazilian educational institutions.

Here is the groundbreaking book that was lacking for those who wish to actively participate in the Knowledge Revolution in the Era of Connections, a must read for educators, academics, managers, authorities and stakeholders of the education industry. Don't waste time and connect to this revealing, comprehensive, practical, inspiring and innovative book, which can contribute to revolutionize knowledge in the Era of Connections through the dissemination of Neural Education!

## 6. BOOK RELEASE

The book will be released on June 18, 2019 and will be available for free download (e-book) or purchase (printed version) at [www.fabiotoledonaweb.com.br](http://www.fabiotoledonaweb.com.br), in Portuguese, English and Spanish.

## 7. SHORT BIOGRAPHY

Fabio Toledo is an education entrepreneur (“edupreneur”), radio broadcaster presenting the columns *Neural Education* and *Success Requires Attitude*, which go on air on dozens of radios in Brazil, other than a lecturer, author of international books, professor of postgraduate courses, international executive with over 20 years’ experience and one of the world’s leading specialists in new technologies and Internet of Things (IoT).

Toledo started his executive career at an electric utility company in Rio de Janeiro at the age of 14, as a minor electrician apprentice. He has held many roles and a number of senior management positions. He worked in France and in the UK as an executive for over 4 years and coordinated renowned and award-winning international projects.

After surviving an attack, he decided to make two dreams come true: to become an entrepreneur in the field of education and to help people build a successful path through education and ethical and wise attitudes.

In addition to creating radio columns, Toledo founded the i9group startup in 2014, an innovative company that helps implement the Technological & Entrepreneurial intelligence subject in schools, provides intelligent solutions and platforms for the education sector, of which he is a partner. For him, education is key to a successful trajectory in modern times.

