

# The Third Wave of Technology in Education

**Juan Pedro Rodriguez**  
Universidad Loyola, Loyola, Bolivia  
Email: [rodriguezpi@gmail.com](mailto:rodriguezpi@gmail.com)

## Abstract

Some of the criteria that are set out below may guide you to a reflection about how should be define the next curriculums and profiles of the teachers in the context of the development of these technologies. The interest that animates this essay deals with a conceptual appreciation of how we imagine and understand the bond and the structure of the relationship that occur between new technologies and education. This interest deals with a conceptual appreciation of how we imagine and understand the bond and the structure of the relationship that occur between new technologies and education. Within the context of the changing social composition of the relationship between education and human growth and quality of life, there is an obvious requirement for the school to become more in tune with contemporary tendencies in information technology and communication.

**Keywords:** *Technology, Education, Curriculums.*



## A. INTRODUCTION

Addressing the issue of trends in Information and Communication Technologies (ICTs) and their relationship with education is to recognize the permanent evolution that technological supports have and will have and their impact on educational management. However, in our opinion, the continuous movement that the development of technologies has makes it difficult to establish reflection indicators that suppose to indicate precisely the changes and adjustments that would have to be made to education to adapt to said mobility.

We must recognize that writing about trends in technology is very difficult. Appraisals that go beyond what has been done up to now run the risk of falling into speculation, the analysis of trends, in our opinion, should be done based on the latest experiences and products made in the different specific areas, in order to "precise" or abstract as far as possible the strategies or situations that would shape the technological processes to come. Remaining only in the descriptive comment of the current situation, supposes, immediately, that any analysis runs the risk of becoming obsolete in a matter of days. The current speed in the changes and products of technology and its applications can hardly serve to make conclusive and definitive interpretations. "A book that dwells on the dazzling enumeration of new technologies can have the same useful life as a catalog of computer products: when the imminent sale of version 2.0 of software is announced, the programmers are preparing the beta release version 3.0 and hackers have already hacked and clandestinely spread version 4.0. The digital world has accustomed us to tomorrow being yesterday" (Scolari, 2009).

Similarly, when addressing the issue of how new technologies are applied in education to generate experiences in their management, teaching and learning processes, it is not only necessary to be in tune with the theoretical construction of the

curriculum and of the educational learning communities in their relations with the new media and technological tools, but also a great effort must be made to understand how the use and development of these new technologies affect –positively or negatively- on inequalities in employment, poverty, hunger, relations of domination , digital gap, etc., social situations that have a direct correlation with the educational fact.

Consequently, it is a matter of understanding the contextual situations in which technological changes are being developed, as well as specifying its own conditions, to point out some theoretical precisions about how some ICT trends affect school daily life, that is, the interest that animates this essay. Starting from this conceptual appreciation, we are guided, as a first approximation, in pointing out in this work some criteria in which the next curricula and teacher profiles would have to be defined in the context of the development of ICTs.

## **B. METHOD**

The way of understanding the object and responding to the formulation of the problem is through methods. The method used must be precise and in accordance with the characteristics of the object of study and the nature of the research. Also, this study uses a qualitative descriptive method, or rather, the data obtained will be described in order to understand and know the phenomena in the study. This method aims to understand the underlying meaning of human behavior. Also, qualitative methods are also used to produce in-depth data and obtain a comprehensive image. This research was carried out by the Library Research Institute, which is a research carried out through the examination of data sources in the form of books, articles, articles and other research results that are still relevant to the research object.

## **C. RESULT AND DISCUSSION**

Some contextual characteristics determine certain scenarios in which the future relationships that can be established between the development of some information and communication technologies in relation to education are perceived. Following Castell (2002), we can mention, for example, how specific cultural situations have been shaping the development of the Internet, in fact the academies and the military structure -where the genesis of the creation of the Internet is found-, today gives step to a culture of freer creation in the production of hardware and software. Thus, it is observed how in different social sectors the initiatives and the creation of processes to access information, education and human development in general determine uses of the Internet and of some technological applications to be part of the daily life in the social and cultural life of those individuals or social sectors.

Internet, according to the cited author, will continue to set the standard in the cultural construction of online spaces and scenarios, will produce the push that should be given to public education policies to incorporate new technologies in school management and, the trend The globalization of technological uses will require rethinking and introducing situations in educational practice in general that recognize

the management of the techno-meritocratic, greater virtual community interaction and promoting the entrepreneurial culture of knowledge for human development.

The complexity of studying society/education relationships and their effects on this process of knowledge production and human development, in our opinion, will require many research studies. However, reference points must always be taken, for example, what the Massachusetts Institute of Technology (MIT) points out, through its Technology Review Magazine (May, 2011), and the Horizon Report 2011 (February, 2011) of the New Media Consortium, from them we can take some lines of work in the relationship indicated above, especially in their opinion on the trends in 2011 of the development of technologies or "new technologies tip" and, what must be considered to establish plans and programs in education 3.0.

The curricular content is always a fundamental topic of debate to achieve the construction of educational activities and situations in the elaboration and production of labor profiles. However, these debates are always oriented towards answering two basic questions: a) what skills do graduates need? and, b) what knowledge should they acquire? From here we recreate ourselves in that world of pedagogical work and reflection to answer these two great questions.

However, first we must continue to understand that it has always been commented that the purpose of educational theories is to understand and identify the knowledge processes that occur in school practices and specific research in the area, and from them, try to describe methods to make instruction more effective. From this, consequently, arise the so-called curricular plans that guide the training of many people, especially students with formal studies. But today, there are new realities to these curricular forms, since people have been using more technologies to communicate, educate themselves, etc., consequently, new reflections are urgently needed about the new forms of knowledge production, new interpretation challenges to place new content and use new teaching strategies in the training of these individuals.

We can illustrate the above with just one example; interactive simulations, games in 2 and 3D, 3D videos, mobile telephony with multiple functions, the use of IPADs in the classroom, mobile platforms, social networks through Facebook, Twitter, YouTube, LinkedIn, Google, Skype, etc., are energizing and strengthening social learning; different content and in greater quantity, mixing content, building new digital empathy among students, creating personalized learning environments, reprogramming school activities focused on student expectations, as well as rethinking the organizers of collective intelligences (teachers and professors) new constructions of learning ecosystems (programs, curricula, repositories of learning objects, in addition to the school environment), and indicating that we must change what we are doing.

Some contextual characteristics determine certain scenarios in which the future relationships that can be established between the development of some information and communication technologies in relation to education are perceived. Following Castell (2002), we can mention, for example, how specific cultural situations have been

shaping the development of the Internet, in fact the academies and the military structure -where the genesis of the creation of the Internet is found-, today gives step to a culture of freer creation in the production of hardware and software. Thus, it is observed how in different social sectors the initiatives and the creation of processes to access information, education and human development in general determine uses of the Internet and of some technological applications to be part of the daily life in the social and cultural life of those individuals or social sectors.

Internet, according to the cited author, will continue to set the standard in the cultural construction of online spaces and scenarios, will produce the push that should be given to public education policies to incorporate new technologies in school management and, the trend The globalization of technological uses will require rethinking and introducing situations in educational practice in general that recognize the management of the techno-meritocratic, greater virtual community interaction and promoting the entrepreneurial culture of knowledge for human development.

The complexity of studying society/education relationships and their effects on this process of knowledge production and human development, in our opinion, will require many research studies. However, reference points must always be taken, for example, what the Massachusetts Institute of Technology (MIT) points out, through its Technology Review Magazine (May, 2011), and the Horizon Report 2011 (February, 2011) of the New Media Consortium, from them we can take some lines of work in the relationship indicated above, especially in their opinion on the trends in 2011 of the development of technologies or "new technologies - tip" and, what must be considered to establish plans and programs in education 3.0.

The curricular content is always a fundamental topic of debate to achieve the construction of educational activities and situations in the elaboration and production of labor profiles. However, these debates are always oriented towards answering two basic questions: a) what skills do graduates need? and, b) what knowledge should they acquire? From here we recreate ourselves in that world of pedagogical work and reflection to answer these two great questions.

However, first we must continue to understand that it has always been commented that the purpose of educational theories is to understand and identify the knowledge processes that occur in school practices and specific research in the area, and from them, try to describe methods to make instruction more effective. From this, consequently, arise the so-called curricular plans that guide the training of many people, especially students with formal studies. But today, there are new realities to these curricular forms, since people have been using more technologies to communicate, educate themselves, etc., consequently, new reflections are urgently needed about the new forms of knowledge production, new interpretation challenges to place new content and use new teaching strategies in the training of these individuals.

We can illustrate the above with just one example; interactive simulations, games in 2 and 3D, 3D videos, mobile telephony with multiple functions, the use of IPADs in the classroom, mobile platforms, social networks through Facebook, Twitter,

YouTube, LinkedIn, Google, Skype, etc., are energizing and strengthening social learning; different content and in greater quantity, mixing content, building new digital empathy among students, creating personalized learning environments, reprogramming school activities focused on student expectations, as well as rethinking the organizers of collective intelligences (teachers and professors) new constructions of learning ecosystems (programs, curricula, repositories of learning objects, in addition to the school environment), and indicating that we must change what we are doing.

In the management of strategies, teachers must understand that the use of technology has become something everyday, these are everywhere in our daily social activities, in the world that are part of our current sociocultural world.

The theoretical and methodological elements that have been sustaining the relationships between technology and education and the practices in school management and scientific research, although they strengthen the principles on which these methods are based, also generate new interpretations of how to "make arrangements" or reflect on new forms of relationships, applications and practices between the theory/paradigm of education with technology. From this reflexive situation arise new hypotheses, conjectures and imaginations that could demonstrate a path towards the dismantling of a theory or the contrast of another in relation to its applications in the relationship indicated above.

New concepts emerge, guiding action in training; invisible learning, social learning networks, learning ecosystems, content remixing, collective intelligence organizers, augmented reality, personalized learning environments, cognitive surplus, transmedia, digital empathy, online hyper-sociability, digital portfolios, repositories of learning objects, etc., which supposes to a certain extent that a new conceptual and communicative form is built between the people of the area.

On the other hand, it has always been commented that the purpose of educational theories is to understand and identify the knowledge processes that take place in school practices and specific research in the area, and from them, try to describe methods so that instruction more effective. But today, new realities, since people have been using more technologies to communicate, educate themselves, etc., pose new interpretation challenges to reflection on the production of knowledge.

In this permanent abundant knowledge, through cyberspace, the representatives of theories, such as: Skinner's behavioral theory; information processing theory; the cognitive behavior theory of Gagné, Piaget and Brunner; systems theories; constructivist theories; Vygotsky, Slavin; Gardner's multiple intelligence theories; to mention a few, stop rethinking some aspects that structure these.

For example, constructivism theorists, so often mentioned in these times, given its preeminence in the construction of shared knowledge and the success of its applications in education using technologies, cannot stop thinking about deepening the relationships established between the network of networks and the neural system of people. One of the many theoretical assessments that currently exist on this

relationship is the so-called "Doctrine of the Neuron". This doctrine is represented by Sharism (Share, of its acronym in English, which means to share). This is defined by Isaac Mao (2011) as: Sharism is the Spirit of the Web 2.0 Era. It has the consistency of a naturalized epistemology and a modernized axiology, but it also carries the promise of a new philosophy on the Internet. Sharism aims to transform the world into an emerging Social Brain: an interconnected hybrid of people and software. We are Network Neurons connected to each other by the synapses of social software. And he adds that, the future world will be a hybrid of human and machine that will generate better and faster decisions at anytime, anywhere. The flow of information between minds will become more flexible and more productive. These vast collaborative networks dedicated to sharing will give rise to a new social order a revolution of the Mind".

Seen in this way, the reflection on the use in the relationship between education and technology, taking into account these theoretical adjustments, assumes that the strategies for cognitive and metacognitive development in the training of teachers and of any person should be aimed at controlling the codes and symbols that allow greater creativity and greater stimulation of the interaction of individual or collective intelligences that are supported by technologies and their pedagogical tools.

#### **D. CONCLUSION**

For some time now, students have been asking the school and the school community for answers to combine learning with reality. The new technologies are generating social interactions which must be responded to, the role of the school in this is of the utmost importance, given the time that the boys spend at school and the resources that exist there to be used in learning. The curricula must be under constant review and elaboration, given the repercussions that the use of new technologies generates on the school on the content of learning and the didactics to teach. The abundance of content and the excess of information and the need for its selection and filtering make it essential to adjust the curricula and the practices of teachers, as well as to build new environments for learning. Likewise, a great challenge is posed to thinkers and theoreticians of education, as technology is introduced more strongly in the classroom and in the social environment, new relationships and interpretations arise that must be carried out in order to "tune" human development. with the tendencies that the information society generates. Finally, teaching practices must be constantly changing. Teachers need to manage ICTs pedagogically, they will always be important in the learning process and in the teaching of ethical and moral attitudes, organizing collective intelligence and motivating future citizens to be more responsible with themselves and with their environment.

#### **REFERENCES**

1. Cabero Almenara, J, & Román Graván, P. (2008). *E-Actividades: Un Referente Básico Para La Formación En Internet*. España: Editorial MAD, S.L.
2. Castell, M. (2006). *La sociedad red: una visión global*. Madrid: Alianza Editorial S.A.

3. Chong, A. (2011). *Conexiones del desarrollo. Impacto de las nuevas tecnologías de la información*. Banco Interamericano de desarrollo Washington, D.C.: Fondo de Cultura Económica.
4. Dreig, D. (2011). *Sociedad del aprendizaje: Entrevista en educación 3.0*. Recuperado de <http://www.dreig.eu/caparazon/2011/10/10/la-sociedaddelaprendizaje-entrevista-en-educacin-3-0/>
5. Echeverría, J. A. (2000). *Un mundo virtual*. Barcelona, España: Plaza & Janés Editores, S.A.
6. Liyoshi, Toru & Vijay, Kumar, M.S. (2008). *Opening Up Education. The Collective Advancement of Education through Open Technology, Open Content, and Open Knowledge*. Cambridge, Massachusetts. The MIT Press.
7. Mao, I. (2011). *Sharismo: Una revolución de la mente. (traducido al español por Emilio Quintana)*. Recuperado de <http://www.nodosele.com>
8. Massachusetts Institute of Technology. (2011). *Emerging technologies*. Technology Review, May/June 2011, pp 41-57.
9. McLuhan, M. (2005). *Understanding Me; Lectures and interviews*. Canada. Edition of the MIT Press.
10. The New Media Consortium & Educause Learning Initiative. (2011). *The Horizon Report*.
11. Scolari, C. A. (2009). *Mapping conversations about new media: the theoretical field of digital communication*. New Media Society.