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INFORMATION TECHNOLOGY - PARADIGMATIC MUTATIONS IN ORGANIZATIONS

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Abstract: Education in today's world to be technological and, consequently, requires understanding and interpretation of technologies trends. These, in turn, being complex and practical, are demanding from man new constitutive elements of formation, reflection and understanding of the social environment in which he is circumscribed. The school has not been able to feed on its time, incorporate and respond to the needs of its youth and its society. One has the feeling that the school does not know how to be modern, does not live simultaneously with everything that moves around it. Education cannot escape the technological fascination, because it is at its heart the same as knowledge. Since knowledge has developed more in educational spaces, it would be expected that the most favorable space for development would reside in education itself. The teacher will be challenged in terms of creativity, so that he or she can postulate a concrete alternative for the use of Information and Communication Technology. The challenge is to prepare students to work with a technological universe.
Keywords: Educational Technology. Teacher training. Teaching/Learning.

INTRODUCTION

Education in today's world to be technological and, consequently, requires understanding and interpretation of technologies trends. These, in turn, being complex and operational, demand from the person new constitutive elements of formation, reflection and understanding of the social environment in which he is circumscribed.

In this context, education, as stated by Bastos (1997), is presented not as a mythological and universal need, but as an understanding of men, human phenomena and facts, since modern society strongly leans towards industrial work, running the risk of abandoning the foundations of life, influenced by the media.

It is indisputable that the media are part of our cultural space, in the broadest sense of the term. Its objectives are not, essentially, of an educational nature, but they have a very real power of charm, and it is essential to take this into account.

That is why it is essential that teachers educating students, from now on, to a "critical reading" that leads them, by themselves, to use television as a learning tool, sorting and hierarchizing the multiple opinions communicated. It is always necessary to persist in this fundamental aim of education: to lead each one to develop their abilities, to establish judgments and, from there, to adopt free performances.

Computerization drives commercial banks; computers are children's toys; seminars debate artificial intelligence. It seems that the 20th century admired itself. Meanwhile, schools seem to have gone through these years without anything new, considering that currently, in colleges, poorly equipped, with less rigorous, more exhausted teachers and without expectations, they try to repeat teachings to an increasingly disinterested class of students.

In each classroom, a teacher often describes the same old theories, students copy. There is no research, there is no creation, there is no knowledge. The school needs life, ideas, contact with real and social needs.

The teacher lacks self-esteem, salary, preparation, knowledge. The most expressive educational changes took place in terms of personal relationships. The development observed in pedagogy is limited to the conceptual and the incorporation of new patterns of behavior, reflecting the freedoms dominated in the social sphere.

The school has not been able to feed on its time, incorporate and respond to the needs of

its youth and its society. One has the feeling that the school does not know how to be modern, does not live simultaneously with everything that moves around it.

Today's children and young people are used to choosing what interests them with an accelerated operation of the remote control. Unable to put up with the boring program that extends to each class and unable to change it, either the students drop the teaching frontally, or incorporate the self-control of their attention. They disconnect, indifferent and alienated from what adults call knowledge, education and preparation for life.

Faced with the multiple challenges of the future, education is born as a necessary asset for humanity in its construction of the ideals of peace, freedom and social justice. For this, it has to face, to overcome, the fundamental tensions that, although not new, establish the core of the problems of the 21st century. The tension between the global and the local: gradually becoming a citizen of the world without submerging your roots and actively participating in the life of your country and grassroots communities.

The tension between tradition and modernity has its beginnings in the same problematic: appropriating oneself without denying oneself, building one's autonomy in dialectic with the freedom and evolution of the other, preponderating scientific progress.

The tension between short-term and long-term solutions, an eternal tension, but sustained today by the domain of the provisional and the instantaneous, in a context where the excess of ephemeral information and emotions leads to a constant concentration on immediate problems. The tension between the indispensable competition and care for equal opportunities.

A classic question that has been suggested since the beginning of the 20th century, both in economic and social and educational policies. Question in certain cases decided, but never in a lasting way. It dares to assert that today the pressure of competition makes many responsible people forget the task of giving every human being the means to be able to fulfill all his opportunities. The tension between the extraordinary development of knowledge and the abilities of identification by human beings.

It is up to education, the sublime task of awakening in everyone, according to the traditions and convictions of each one, this increase of thought and spirit towards the universal. The concept of lifelong education emerges, therefore, as one of the keys to these first years of the 21st century. It goes beyond the traditional distinction between initial education and continuing education. It comes from responding to the challenge of a world through rapid change in order to be prepared to accompany renewal, both in private and professional life.

It is a charge that will only become satisfied when we all learn to learn. But the intense transformation in the traditional frameworks of human existence puts us before the obligation to better understand the other and to better understand the world.

However, one cannot forget the other three pillars of education, which in a way provide the fundamental elements for learning to live together. First, learn to know. Then learn to do. Finally and above all, learn to be. The certainty that a new world presumes a new pedagogy is not enough. The concern for communicability with the young people of the 21st century is not enough, nor the invention of a school of the future, in which the perspectives of the student of the future fit.

The beginning of every educational system is the teacher. If he fails, education fails. Therefore, the emerging task of the State and civil society is to prepare the teacher, because without their enthusiasm, any school

is abandoned; without his word from him and his painful craft from him, there is no education.

Kerckhove (1998) points to the appearance of a whole new way of understanding culture due to the incidence of these new media, where it presents itself as a pleasant, fun and stimulating disseminator of the emerging cyberculture modes. At the same time, these new means are added to the old ones, such as television, the telephone and the fax, which nevertheless continue to occupy a central role in our daily lives.

His understanding of what cyberculture is truly has a provocative grace: cyberculture is the multiplication of mass by speed (KERCKHOVE, 1998), adding what for him is its most important characteristic: depth. Information technology allows us to move from two dimensions – typical of writing – to three, as in virtual reality, at the same time that it allows us to enter microscopic levels.

In turn, cyberculture locates its eco-system in the globalization that it itself causes. According to Kerckhove (1998.), the new media fight precisely against this linearity and it is fundamental to learn to think, modifying our "neural configuration", around a "hypertextual" modality.

Demo (1998) says that the day is coming when practically all education will be "tel-education", that is, interceded by a certain form of electronic instrumentation, mainly by "new media", directed at the interconnection of television with the Internet. The challenge that instructionism has to overcome, to reach clearer levels of learning. In the background, according to the author, is the "knowledge society" and, in the context of the market, the capitalism of relative surplus value, which, by itself, already establishes minimum conditions of globalized competitiveness, starting to value knowing how to think.

This knowing how to think is limited to the productive management of knowledge, not to citizenship, since the liberal ways of the market are unable to place citizenship above the market relationship, however much they may use attractive alternative languages. But it provokes a commitment to the reconstruction of knowledge, never to its simple, copied, reproductive transmission.

Education cannot escape the technological fascination, because it is basically the same as knowledge. As it was in educational spaces that knowledge developed the most, it would be expected that the space that would most benefit from it would be education itself.

Ultimately, the right to learn, increasingly considered an essential human right in terms of the right to life, will raise the need to balance physical and virtual presence, because it is not possible in the context of everyday life to always be sitting in a classroom. to listen to the teacher at an appointed time. We have a lot to learn about distance guidance, because it certainly has other pedagogical parameters and is possibly more demanding than face-to-face guidance.

In education (and also in other sectors) there is no machine that replaces the teacher, and when this happens it is because the teacher deserves it. Educational technology is, for example, using a can of water, a piece of wood and a stone to clarify the fluctuation of bodies; pressing a button on a video on the subject and letting the students watch it passively, on the other hand, has nothing to do with technology.

This points to the conception of a new educator. As much as one thinks about using video, the computer or even the blackboard, it is in teacher training that educational technology is developed, preparing leaders, mediators and stimulators, more than holders of certain knowledge.

The teacher of this new century needs to know how to guide students on where to obtain

information, how to discuss this information, how to use the information obtained. This educator will guide self-training and advise students on learning, sometimes encouraging individual work, sometimes supporting the work of small groups grouped by area of interest.

It is imperative to transform the classroom into an interactive environment that facilitates learning. To achieve such an effect, many techniques could be applied, from the use of video and games to even dramatic art or model building. However, given the difficulty and investment of time to achieve the minimum of results, today a tool that brings together all these possibilities can be prepared: the computer. In it you can work with writing and numbers, with image and sound, simulate phenomena, play games, connect other countries.

In a world where the amount of information produced daily exceeds that which can be submerged by a human being during his entire life, it is necessary to prepare the relationship with knowledge at school on bases that are totally different from those that are currently exercised.

It is not enough for students to just remember the information: they must have the aptitude and desire to use it, they must know how to report it, synthesize it, analyze it and evaluate it. Together, these elements establish what can be called critical thinking. It appears in every classroom as students strive to move beyond simple answers, as they challenge ideas and conclusions, as they seek to unite unrelated events into a coherent understanding of the world.

But its most fundamental application is outside the classroom, and that is where the school needs to focus its efforts. The ability to think critically is of little value if not practiced in everyday real-life situations. No, it has its role, setting the scene for important adventures of the intellect. There are simulations for almost every area: travel inside the human body, city building, maritime or interplanetary travel, adventures in various times of history, etc.

Of course, all this does not happen spontaneously, and that is where the teacher's role comes in, encouraging students to make connections with events outside the world of simulation, discovering the connection between the occasion experienced and the curricular contents. There are several simple tactics that the teacher can use that can be enormously motivating, encouraging transfer methods.

Or, as Marinho (2002) asserts, teachers will certainly have a preponderant role in the strategies for incorporating the computer in school, assuming an important role as delimiters of this practice. However, in no way can the responsibility for the success or failure of the undertaking be credited or imputed to them alone.

But they face several challenges. And these challenges are many, in what seems to be incontestable proof of the very role that teachers are destined to play in an education that takes place in a computerized environment, characteristic of a pre-modern school. The teacher will be, perhaps, the most important agent in the process of changing the school.

If education is an instrument of civility and a condition for the economic survival of any nation, letting it falter is giving up on the future. Problems cannot be solved only with the school's technical equipment. Modern technological resources can help improve methods and make learning more effective. But massive investment needs to be made on human resources.

And this starts with restoring the education professional's self-esteem: salary adequacy will not only allow him to survive, but the relationship with the universe of culture and

information. Meanwhile, it is up to the State to control the quality of education, to end the cycle of precarious professional training of teachers.

It concerns the educational reality. Since millions of children and adolescents are illiterate. With technology in constant evolution, these Brazilians are condemned to live in poverty, outside the labor market. Based on this, a new mission for the school emerges, that is, it does not only need to teach reading and writing, it needs to develop citizens, because it is through the school that the socio-economic reality of a country, state or municipality will be changed.

Based on what Cox (2003) wrote, it can be said, for example, that the use of computational objects in the actions of the Brazilian public school education process is at different stages of development; while in some schools distance education, virtual libraries and optimization of the speed of computer networks are discussed, there are others where the machines are underused, in disuse or even have traditional libraries, laboratories with computers or even electricity.

Education was, is and will always be the key to making social mobility viable, as it acts directly in the labor market, improving the quality of life of citizens. However, above all, the school needs to restructure itself.

Repetition and evasion establish the phenomenon called "school failure". Social, political, economic and pedagogical factors are attributed to school failure. For many, children do not learn because they are poor or malnourished, their parents are illiterate, or even because teachers are poorly paid, not having enough enthusiasm to provide quality education, in addition to being untrained.

Substantial changes in society and education in a country are directly related to the occurrence of structural changes in the political and economic order. The transition of times can be felt from the reorganization of work by informatics.

The return of the worker to the home, or rather, the flexibility regarding his appearance in a fixed place of work, determined a new way of proceeding in society. Therefore, one can already feel the new values sweeping away the old ones like a wave of the sea retaining more energy.

The knowledge society, as opposed to the industrial society, is oriented towards the service economy. In it, power depends on the means of conception and information. In other words, it depends on basic research and its laboratories, as well as on the mass media.

This way, the intellectualization of work is established in an accentuated principle of the knowledge society. Thus, work is increasingly being shifted from manual work to intellectual work. Thus, we are witnessing the phenomenon of development without employment and without work.

As wealth increases, the supply of jobs decreases. The rich become richer and less abundant, while the poor grow in number and poverty. Manual labor is shifting from manufacturing to the service sector.

Thus, theoretical knowledge or the primacy of ideas is an important characteristic of knowledge societies. Thus, there will be societies that will generate patents, there will be those that will produce goods and others that will simply be consumers. All of this can be enhanced by Educational Technology.

The name Educational Technology did not emerge in Brazil with a single conceptualization. Since their arrival, educators have come across different concepts that are characterized by a differentiated understanding of the role of technological instruments in the educational process.

As advocated by Mello (1989), with different denominations or labels - audiovisual media, instructional media, programmed

instruction, teaching technology(s), instruction engineering, technological resources applied to education, computer-based teaching, multimedia system, modular teaching or system, tele-education or distance education -, educational technology has been installed in different sectors, in education and in business.

Since the studies of Auricchio (1978), it could already be observed that the first historical concept of Educational Technology was based only on the physical sciences. This type of Educational Technology saw the use of hardware, that is, technological resources (mechanical, optical, electrical and electronic, etc.), equipment or means in general (TV, projectors, etc.) as an end and not as a means to the transmission of the instruction. It was not concerned with individual student differences, with setting goals, with selecting instructional strategies and content, or with evaluating learning outcomes.

As Veit (1989) emphasized: technique is of interest to education in two senses: it can be both a means and an instrument, and here all the problems of educational technology are inscribed. It can be considered an element that integrates the human world, affecting it profoundly, generating and transforming values, and this way, forcing the introduction of considerable reformulations. This puts the problem of the learner and the purposes of education in new terms.

It is necessary to point out that the school will be working well if it achieves a satisfactory role, not only an intellectual one. There are multiple school objectives. The measure of a system's adaptability and innovation is its ability to fit a clientele. The changing. The purpose is to understand the behavior of the system as a whole and represent the shape of the box and how and what happens to the people in it, not just the students, but teachers, administrators, and the community.

Baquero (1989) assures that if science and technology are indispensable for the autonomous development of a nation, the assertion is true when applied to the areas of science and educational technology. In this case, it is not possible to restrict oneself to the reproduction of technology, it is necessary to define what are and how the most appropriate technologies can be developed for our human, social, cultural and economic development, to promote the well-being of the majority of the population and to reduce dependence on the great powers.

Libâneo (1982) situates the sociological aspect of education, identifies this approach as part of Liberal Pedagogy, in its '' Renovated Progressive version", paying attention to the "educational technology" movement, stating that we prefer to place it here and not with the trends of the behaviorist type, even though it has a theoretical basis in this current. Educational technology was inserted in public education systems from the progressive tradition that favors teaching from the angle of methodological aspects as opposed to highlighting the content of subjects. This way, the resources provided by education technology were brought together to school practice.

Change is part of man's relationship with the world, although many people refuse to experience it, because it involves risks, it has a cost. For Farias (2003) since man is born, he lives with the need and possibility of change that is, at the same time, an invitation and a requirement of his historical and social condition as a being of praxis.

Still based on Farias' statements, change is engendered slowly, being a process and not a fact; slow and gradual process most of the time. Every change is a source of ambivalent feelings when placing the individual in front of the dilemma of maintaining the status quo or changing. Changing the vision that guides

the way of acting, thinking and interacting with things around you and with others.

Such an understanding of change, says Farias (2003), implies perceiving it as a process that goes beyond mechanical conduct in situations of social interaction; beyond the simple change of routine, the introduction of a new technological artifact (computer, facsimile, etc.), or even the reorganization of hierarchical relationships in a given institutional context.

You don't need to be an electronics expert to see that the transforming movement that affects information, communication and education itself today constitutes a profound technological revolution. This potential can be seen as an imbalance factor, reinforcing the islands of excellence destined for privileged groups, or it can constitute a powerful lever for promoting and rescuing the citizenship of a large mass of marginalized people, creating a broad base of knowledge in the country, an authentic scientific and cultural revolution (Dowbor, 2001).

It is also difficult not to agree with Pfromm Netto (2001), when he states that in the context of teaching-learning, the way in which not a few institutions and people, directly or indirectly linked to teaching, face technology in education is still strange.

Far from seeing it as one of the most powerful sets of resources available to teachers and their students, they are based on a narrow and superficial conception, according to which educational technology is nothing more than a luxury or a passing fad.

Overt or disguised resistance to educational technology occurs both in the microcosm of the school and at the local, regional, national and even international levels of education.

In the world we live in today and in which we will live tomorrow, says Pfromm Netto (2001), the individual life and the responsible involvement of each citizen in the activities and obligations of the groups within which he interacts, as well as society in general, have come to depend on, on a scale never before imagined, of free and immediate access to relevant and reliable information.

The teacher must find his own, most adequate ways for a practice, in his subject, that incorporates, for example, the computer, when this resource is effectively necessary or convenient - this entry cannot be forced on the computer, making it the solution of problems, as emphasized by Marinho (2002).

In the opinion of Oliveira (1997), the entry of computers into education will drive a new relationship between teachers and students, since the arrival of this technology suggests to teachers a new style of behavior in the classroom, perhaps even, regardless of how he use this resource in your work.

Still in the author's judgment, as teachers begin to use it, practices that inhibit students from advancing in the development of their own problem-solving strategies will not find space, as well as in the construction of activities that are expressions of rich imagination. and without limitation of the child or teenager.

However, this is not about flooding schools and other institutions with computers, as emphasized by Dowbor (2001), numerous studies carried out in companies show how simple computerization only leads to the same silliness being done more quickly, in addition to the accumulation of equipment sophisticated machines used as typewriters. It is about organizing the productive assimilation of a set of powerful instruments that will only be able to function effectively when promoting cultural change, in the broadest, corresponding sense.

The teacher will be challenged in terms of creativity, so that he can postulate concrete alternatives for the use of Educational Technology. This challenge, specific to the

issue of the computer, is consistent with another challenge, addressed by Marinho (2002), there are few teachers eager to try out new ideas, even at the risk of failure.

At the other extreme are those who have little interest, lack energy, or don't have time for such experimentation.

The teacher cannot fear experimentation, in the search for methodological alternatives, and must even practice it as a strategy for professional growth. Another alternative is for teachers to continue doing what they have been doing, that is: repeating the same classes as twenty or more years ago, using the notes on cards already yellowed by time, doing the teaching of the 19th century in the 21st century. This will not be impossible at all, but it will certainly be irresponsible, as education belongs to the students, not the teachers.

The challenge, as advocated by Dowbor (2001), is simple: teachers are responsible for preparing students to work with a technological universe in which they themselves are still neophytes.

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