

Holography: a possible shift in a qualitative assisted education?

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Abstract: The influence of digital technologies in today's modern world and the ever-growing human-machine interactions are unquestionable. The delight brought on by the technologies does not affect gender, race, age, or social class. Their omnipresence is well patented in streets, at work, at home or at school, to name a few. This work will focus its interest on this last dimension. Due to the growing advances in technology, the educational systems are bound to continually adapt. The aim of this work is to make a brief reflection regarding a potential educational technology: the holographic tutor.

Keywords: Digital technologies, education, holographic tutor.

1. Scenarios of the Past, Visions for the Future

During the 80's we've started to feel a more obvious presence of new technologies in the school (Monteiro & Rezende, 1993). That happened via television, with the tele-broadcast classes, either by the evolution of computers that came to save greater amount of information, consequently, assuming an increasingly active role in the classroom. Currently, the multimedia resources and hypermedia technology take the most varied forms of organization and management in the presentation of curricular content. Nowadays, we have a range of technological possibilities that stimulate either the creation or consumption of playful-educational software by parents, teachers and students. These resources have turn out to have a primary role in relation to the evolution and dynamics of the teaching-learning theories of the present and future.

According to Figueiredo (2002), we could establish a parallel between the school these days and the school of the past using two metaphors: a) the Taylorist metaphor of the machine and b) the "we" rather than "me" metaphor. The first one comes in the wake of the industrial era (nineteenth century), in which students were placed in a school environment and trained to behave like machines. The classroom organization in rows of desks and the bell ringing to enter and exit,

leads us to an image of a massive production of knowledge. The education takes this course: from the illustrated teachers heads and manuals to the empty heads of students (Figueiredo: 2002), instilling them with principles such as routine, competitive individualism and passivity. Serial learning succeeds network learning. Here comes the second metaphor that appeals to shared values of collaborative, cooperative and interactive learning. Knowledge built in community philosophy. The "we" as opposed to "I lonely". Construction of knowledge based on principles like freedom, responsibility, collaboration, cooperation, sharing and interaction.

In Negroponte's (1996) terminology, to the industrial age of atoms succeeds the information age or bits age, after that arrived the third period, the era of post-information. The era of post-information advocates a learning paradigm, which conceives that all learners are special and each student is unique with a particularly way of learning.

Previously, a teacher was the transmitter of undoubted, absolute, immutable, stable, eternal and indisputable book knowledge. The changes happened in a subtle speed. In post-modern societies, knowledge is available to an increasing number of people. Now, it is taking great strides in a dizzying speed. Given the current European situation, specifically according to the directives of Bologna, there are decisive steps to promote self-learning. Lifelong learning, in order to produce knowledge is more significant and suited to complex situations. We are breathing the winds of change that is bound to restructure education, so education needs to reinvent itself in order to follow the demands of social and technological advances. Ponte (2000) says that school, as we know it nowadays, will inevitably change and it will, probability, be unrecognizable in a few decades. In this sense, information and communication technological advances promote the change of paradigms which concern to the production, management and sharing of knowledge. With the change of paradigms, the world also changes.

Claiming that digital technologies have an integrant role on the day-to-day lives of young people is a verifiable and undeniable fact which does not bring any new or need for scientific confirmation. Thus, it is surely observable the dependency and fluency of the new generations to technological resources and language. If we look up an adolescent bag we guess the existence of at least a pair of objects, such as MP3, iPod, PDA, Palm Top, mobile phone, laptop computer or other gadget. Decades ago, in the same bag, we would find a pivot, a cart, a doll or a magic cube... Today, thanks to the versatility of available resources, young people are more autonomous in search of knowledge comparing to previous generations. Currently the diversity and potential of digital resources diversifies and expands the ways they make their knowledge acquisition: SMS, MSN, email, chats, Podcast, discussion forums, blogs, photoblogs, webquests among others. These resources, increasingly, make time and space unlimited. In this sense, the current and future digital technologies and the cyberspace, as opposed to the apathetic and passive books, are more attractive and fun.

Cyber-utopias and cyber-criticism aside, it is a fact that, as everything that surrounds us, technology can be good or bad; it depends how we use it; but it is also undeniable that technology came to stay. Therefore, it is important to accept it

and be prepared to the fact that, like Papert (1997) .said greater freedom of choice dramatically change the way children learn and develop.

Corroborating this idea, McDonough (2005) predicted that in a not too distant future, students will spend more time alone in front of the computer. It is assumed that: parents will work more from home; perhaps for security reasons children will increasingly study and play at home connected to others and to the school through digital technologies. So, though it is not predicted the physical disappearance of the school, it is expected that learning will, in large measure, be done from home. Moreover, Papert (1997) said twelve years ago that "with so many options available, the concept of home schooling will merge in another larger of the learning society".

As revealed in a study, built on the basis of hearing the views of american students of various ages, and different quarters of society, placed in separate educational realities, about potential technologies that they would like it to be invented, one of the gadget desirable and listed by these young people was the virtual tutor (VISIONS Report 2020, Department of Trade and Education in the United States of America). The virtual tutor as a virtual assistant who could talk, interact and help in the study at home after school.

This technology would offer the possibility to be used, for instance, with young people who are geographically or physically disabled to go to school or young people with learning difficulties. It would work as a mentor with educational, social, emotional and communicative skills that, interactively, help the student in the course of individual learning.

In the past we had the so-called auxiliary means of education (film, radio and television), nothing more than technological means, that did not interfere in educational practice. These instruments only supported the teacher in the way as the book or the blackboard did in the task of teaching. Experts in the area, such as Nicholas Negroponte (1996) of the Massachusetts Institute of Technology (MIT) predict that one day we will be surrounded by holographic images. All those special effects we see in movies will be ordinary in the future, because the 3-D holographic images will come in our homes and we'll see all the action in the films as if it was happening in our living room. As a result MIT is already developing technologies that allows user to interact with the hologram. About this issue, Negroponte (1996) says that in a near future it is probable that we'll have a group of holographic assistants to whom we'll talk to.

2. The Holographic Tutor

The use of a holographic tutor would personalize learning, measuring the learning capabilities and difficulties of the learner and functioning as a complement to the work held in the classroom and works in collaboration with the teacher at school. The digital assistant would be operated through a small portable computer, a pocket device that the student carries with him. This instrument frees the student from having to perform tasks in a specific location and relieves him of the weight

of books and bag. The curriculum content and school tasks would be discharged in the form of hologram.

The holographic mentor, a mixture of artificial intelligence and virtual reality, acts as a valuable advisor in solving problems and in investigations to be done for the school activities. "He must have the ability to understand, learn, reason and solve problems. In addition to identifying the weaknesses and strengths of students and a pedagogical strategy related to such information. He should seek relevant information about the student's learning (for instance, their style of learning) and use the best means of instruction for that particular student. Throughout the education system must assess whether the student is processing and assimilating into the correct way" (Santos, 1999).

Imagine the potential this would have in a history or geography class in which the user would learn in a setting of simulacrum. The content presented would provide much more realistic and stimulating sensations motivating for a richer and innovative learning environment.

Domestic support with a holographic tutor permits parents to participate and assure children's education with full access to the activities to be performed by the student; following his performance at school; the experience of learning without thinking technology as a Trojan horse.

3. Conclusion

Technological advances can create opportunities that meet the needs of each student, promoting learning anytime, everywhere, extolling values such as education, competitiveness, innovation and mission.

It is common to visualize school as synonym for hard work as opposed to pleasure (Seabra in Garcia: 1994), the discipline as the antithesis of fun, the concept of teacher marked by a vertical image as the person who teaches knowledge that students must memorize. This is a system in collapse.

Some specialists, responsible for the field of educational technologies, realized that there is "a passionate love-affair between children and computers"¹ (Papert, 1999). The holographic tutor would far beyond the Computer Aided Education, that deprives student of the social-emotional dimension that is established between student and teacher, and it would encourage the cognitive dimension, which provides creativity and greater freedom in learning.

The old Socratic method would rise with all its esplendor in the age of post-information, a student centred learning environment. The holographic education support would be like a personal trainer's of knowledge. With this new technology, learning would be an (inter)active process. Students would no longer passively absorb contents; nor be measured by tests in order to build their knowledge from their personal experiences; building a school based on freedom and greater responsibility. The quality imposes to the quantity.

¹ My translation.

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