

ENTRE LO VIRTUAL Y LO REAL: LA TECNOLOGIA Y LA CIUDAD COMO UNA OPORTUNIDAD Y UN DESAFIO PARA LA EDUCACIÓN DEL FUTURO

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Resumen

Vivimos inmersos en un mundo que pulsa al ritmo del transformador ecosistema de comunicaciones y con interfaces múltiples entre el tiempo real y el virtual. Cada individuo es cada vez más influenciado por las nuevas tecnologías (sistemas de información y comunicación) y por la globalización, donde la educación juega un sentido de vital importancia. Es un mundo que se ha emancipado en la designación de un mundo del futuro a imponer a nosotros una geografía libre de los patrones espaciales para imponer los temporales. Se trata de una geografía donde las ciudades se transforman en hechos y las tecnologías en tiempo con las interfaces entre lo virtual y lo real, que quieren el ubicuo para responder a los sueños de felicidad.

En este escenario, la ciudad ocupa en imaginario de la educación del futuro un lugar de oportunidades compartidas por todas las personas (Sin importar la edad) en el espíritu empresarial, en la inclusión social, con el fin de vivir en armonía unos con otros, con calidad de vida. La ciudad se presenta como protagonista de la educación del futuro, apalancada por las tecnologías, a creerse capaz de contrariar la marginalidad, el desarrollo de guetos, identidades acrílicas, vacíos generados por la soledad, la alienación, la pobreza, la violencia, la exclusión. Se presenta hábil para participar en el desarrollo adaptativo de los nuevos estilos de vida que van surgiendo en la demanda de la sociedad del conocimiento, inclusive si tecnologizada.

Palabras clave

Sistemas de información, la educación del futuro, ciudad creativa

Abstract

We live immersed in a world that pulsates with the transforming rhythm of the communications ecosystem and with multiple interfaces between the virtual and the real time. Each individual is increasingly influenced by new technologies (information and communication systems) and globalization, where education plays a vital important sense.

It is a world that becomes emancipated by the designation of the future world and imposes geography free of spatial patterns but instead uses time patterns. It is a geography where cities are transformed into events and technologies into time with interfaces between the virtual and real, which aims the ubiquitous to answer to the dreams of happiness.

Within this scenario, the city fulfils in the imaginary of the education of the future a place of participatory opportunity for all individuals (regardless of age) in entrepreneurship, social inclusion, in order to live in harmony with each other and with quality of life. The city presents itself as the protagonist of education of the future, driven by technology, believing to be able to counteract the marginalization, the development of ghettos, uncritical identities, emptiness generated by the loneliness, alienation, poverty, violence and exclusion. The city presents itself as able to participate in the adaptive development of new lifestyles that arise within the demand of the knowledge society, even when technologized.

Key words

Information systems, education of the future, creative city

Introduction

Between the virtual and the real is part of the CULTURis program. Is a plural research project that aims to answer to the multiple opportunities for learning, proper of contemporary societies/cities, helping to promote the construction of collective knowledge. It is a project that uses technology of intangible to make tangible the concept of creative and innovative city in urban educational contexts (Viana & Machado, 2011). CULTURis fosters the construction of collective knowledge, where the primary concern focuses on citizens of all ages and social conditions integrated in a common regional network, to desirably communicate with formal and informal learning and development spaces. Within a collaborative action research methodology, pervasive and ubiquitous technologies (Fernandes, Machado & Carvalho, 2007) are adopted to make tangible the concept of community/city creativity and innovation.

What is evident from the project, as part of the paper that we propose, is the relevance of generating contextual activities for people/citizens in areas of personal and collective action, where the family assumes a nuclear environment of belonging and, as such, the key for involving children in natural contexts of learning that the community/city (Dunst, Raab, Trivette & Swanson, 2010) can provide in a creative, entertaining, constructively critical, transformative and inclusive way. These activities contextualized within natural environments of belonging, mean structuring niches of daily multiple and significant learning experiences (in the work of Dunst,

2001), configured for glocal innovative postures. Capable of providing, in quality and diversity meaningful life opportunities that enable transmute life with joy, with confidence, while structural axes for plural and global integrated learning and development of citizens, of children, assuming itself a concept of early intervention and inclusion (Viana & Serrano, 2010). To further enhance the interventions, it is necessary to consider them organized and systematized, becoming crucial mapping the resources of the community/city as a useful device to the intervention. To facilitate and identify, characterize and report, each and every one, about the learning opportunities available and provide a plan within and between communities/cities, in a vision of engagement, of valuing interests and abilities that will maximize learning and development.

This project aims to develop approaches that can enable the construction of spaces of continuous discovery and co-responsible training and lifelong learning. These spaces will enable all citizens to be active players in their own development processes which will be innovative and creative in order to meet the challenges of the twenty-first century, of the education of the future.

These approaches formalize the methods and processes needed to develop spaces that are able to provide citizens with the location and characteristics of learning environments, formal, informal and non-formal, within the city. These spaces should give citizens of all ages and social conditions the harmonization of local cultures, in time, with the prospect of a globalize world in Europe. The challenges of rapid social and economic change should be considered by the approaches advocated within this project, enabling people with different needs and based upon those needs, develop essential skills for flexible adaptation, critical and innovative competencies for their immersion and lives in the space, and for mutual and differentiated learning using the inter-institutional articulation and sharing of practices.

The focus of the project will be the building of a map that identifies the entities/potential educational/training of the city, directly and indirectly related to professional education and training. This between the virtual and the real will enhance the four essential dimensions of the intervention of the project: culture, technology, education/training and inclusion. Between the virtual and the real will be built that will illustrate a case of how this project proposes to overcome the multiplicity of agents that hinder the use of technology in education/training in the city, and contributes to improve the national education system and training (ET and EU 2020), enriching and creating a space of learning opportunities within urban education (new spaces – empowering families and children and citizens, encouraging development and learning). The map that identifies the entities/potential educational/training of the city will match the main glocal - global and local - Communication device. Its implementation will use the most advanced Information Technology and Communications, including web technologies and social service-oriented (service-oriented architecture and cloud computing). Based on this technological infrastructure, the between the virtual and the real will be supported by a multilingual ubiquitous platform.

The survey mapping the city intends to use an action research methodology and proposes a qualitative and interpretive methodological approach, translated into a case study (Stake, 2003) that will be held in the city of Guimarães (Guimarães is a world heritage city located in the North of Portugal and it will be European capital of culture in 2012).

Objectives

The Project Objectives:

- To develop the educational/training map of the creative and innovative city in each partner country – we adapted the understanding of “educational map” of Jaume Trilla (2005), that is, “educational map” understood as the agents inventory and distribution in the territory (institutions, equipment, ...) that have (or could have) an educational projection on its citizens.
- To generate a roadmap for action, method and materials which can be transferred to other cities;
- To contribute to develop and disseminate a culture of collaboration within dialogue (without frontiers), through ICT, while an environment/context/professional tool of active citizenship, for the development of sustainable intelligence;
- To contribute to generate a glocal learning community of teachers, trainers, learners, employers and policy makers;
- To enhance the unique needs of learners in diverse contexts;
- To promote the use of technologies for digital interaction (HCI, usability, web2.0) to build relational spaces and stimulate and facilitate generational and inter-generational plural dialogue;
- To develop the concept of educational/training map of the creative and innovative city as an engine of sustained social, economic and territorial cohesion, able to promote the development of sustainable intelligence for the wellbeing of its citizens.

The map includes both formal and informal agencies [the idea of “architecture” of the map will be developed according to taxonomies capable of dealing with the action and with the specificity of the different entities (institutions, work-related spaces, with leisure activities, with special needs education, with culture, and sporting venues)].

the study develops content, gets specific results for each context/city, but the procedures, tools/materials can be transferred and adapted to other cities, other contexts (sharing, dissemination will be made through a multilingual ubiquitous platform).

Methodology

The methodology approach of this study, with characteristics that are close to the Participatory action research ones (Denzin & Lincoln, 2003), promotes reflective and critical construction of knowledge by all key informants (cluster of schools, parents, enterprises, local development associations) . The map that identifies the entities/potential learning opportunities of the city will match the main glocal communication device. Its implementation will use the most advanced Information Technology and Communications, including web technologies and social service-oriented (service-oriented architecture and cloud computing). Based on this technological infrastructure, the city map will be supported by multilingual ubiquitous platform. This multilingual ubiquitous platform will respond, in an integrated manner, to the different needs of children and families and citizens at different stages of education. It aims to continuously construct, in a participative and shared manner, the sustain-

nable development of intelligence. Characterized by the ability of every citizen participants in the city to identify and develop the necessary skills for his/her wellbeing as active and creative citizens, in an inclusive perspective aiming to promote a culture of participation and lifelong learning in which concerns to urban education. It also aims to be a process that provides policy-makers, professionals, families, teachers, within a multidimensional space (local, national and global) and transparent common goals in the Community action plan regarding programs, strategies, education, learning and training of professionals.

The study develops structured in four areas:

- a) quality of the plan – diagnosis of the educational potential of the city in the areas of formal, non-formal and informal education;
- b) conceptualization of the intervention – methodologies and tools for constructing and developing the educative map of the city;
- c) development, technology implementation – multilingual ubiquitous platform for leveraging training and employment and for developing the educative map of the city;
- d) demonstration – exploration/dissemination of results – pilot case for Guimarães city – integrated educative project and network.

1. Challenges for tomorrow's education

This project's intention, at this time and space, is to use the symbolic strength of Guimarães City European Capital of Culture 2012, to respond to the Creative City concept and to the challenges that it brings us to organize ourselves for inhabiting the new century. Therefore, it constitutes an idea/image for I & D and transforming action, to innovate the social intervention/educational/trainer, while a constructive activity. Capable of enhancing the principles enshrined in the European Capital of Culture program, as well as in the Millennium Declaration of the United Nations, in the Strategic Framework for Education European Cooperation and also in the Laws and Regulations that guide the formal/non-formal/informal education/training of the country.

The perspective of the constructive process for cultural, social and economic development, of the city, is as a space closer to citizens, and for city inhabitants. This context allows the city to assume the culture, the education and the training as a strategy essential for the harmonious and democratic development, in a relationship between education and the information /knowledge society. This will foster new ways to respond to inequality and injustice that can increment poverty, marginalization and the exclusion.

It is an idea/image that brings other perspectives for the municipality action. It takes shape and values in the integrated and relational development of the city, as a cultural, plural and creative territory, moved by critical and creative citizens, capable of using and develop educational/informational capital which is the cultural heritage that identifies it.

To the schools as we know, it is entrusted a public service mission, oriented to provide each and every citizen the opportunity to build skills and knowledge, to enable their own integrated and globally development. It is perceived as facilitators of active citizenship participation, visible about the positive integration in the social, cultural and economic space. With this intention, it is requested a more significantly participation of families and

communities in schools. To establish an effective communication with the outside of the school and a connection with the local community, is intended in order to strengthen the schools leadership and to better highlight and work the identity of each school with responsibility and dynamism. An identity sustained in joint and shared construction, with common and coherent Projects, reinforced with a clear autonomy of schools. The challenge imposed to schools, particularly, to the teachers and the local communities can be capitalized on synergies to promote the exercise of autonomy of both participants. So, we claim that, when deconstructed and framed by a culture of articulation between globalization and information, in a relationship between culture/education and society, brings benefits for human development. And also for the development of local communities (eg, valuing the information-action, the technical and human training, the lifelong learning, claimed by UNESCO as a credible expression of the professional/citizen, critical and creative, in the community).

With converging intentions, it has been developed at an international level, various programs aimed to enhance the effectiveness of education and training systems, in which the countries involved have made commitments and clear the common goals for the next decade. Portugal will actively participate in the program of the European Union Strategic Framework for European Cooperation within the content of Education and Training (ET 2020). This program defines common goals for education and training in Europe for the 2020 horizon.

More recently, Portugal also decided to get involved in the Project 2021 Educational Goals that takes place within the Organization of Ibero-American States, of which Portugal is a member. This program assumes as its central goal the improvement of education in countries that take part of the Ibero-American space.

1.1. Teachers' expectations with the culturis program

The school and especially the teachers expect that this program may enhance processes of reflection, collaboration and communication from the perspective of learning community.

They hope it will allow them to characterize the profile of the teacher and to find out how to teach in order to promote success (best results, the quality of learning, professional performance and quality of participation by different actors). How to organize the school that fosters leadership and the acquisition of knowledge capable of responding to existing challenges?

They expect to be able to respond to the need to organize the school so the teacher can raise self-awareness and develop their professional identity. Being able to generate the opportunity to respond autonomously to the challenge of adapting the ways of teaching to the ways of learning of each student, respecting national, international or regional guidelines and integrating the participation of the different players (Day; Flores & Viana, 2007).

They imagine that, the technology and the city as an opportunity and challenge for the tomorrow's education could:

- Establish priorities to optimize the action, intervention and the reflection shared in a timely and participatory form;
- Optimize communication for to be able to articulate work commitment, culture of quality requirements, disseminating the quality of results.
- Make the school results visible through a database accessible for all stakeholders;

- To facilitate finding strategies to improve, identify and design guidelines, in an integrated and shared way;
- Making a reality, the involvement of parents, teachers, students and other partners;
- Allow to monitor, to identify and to understand interests, motivations, needs and priorities to optimize the action, intervention and reflection on a shared way and in due time;
- Allow viewing/understand how to work in an integrated, shared and co-responsible form, able to know/consider how to improve, for intervene/take concerted decision as to improve the results for the eradication of abandonment, to improve the quality learning, teacher performance, enhancing the teaching/learning oriented towards inclusion and active citizenship;
- Enable understand, discover and develop processes with common languages - to promote the leadership of teachers (to facilitate the ownership of specific knowledge), the analysis of the problems and the implication of all stakeholders, the management of time (the school is resolved in time);
- To identify and to design mechanisms that make the strategies, reflective, collaborative and communicative within and outside the school, and be able to respond to the purpose of improving results - to optimize the communication between the different management structures which characterize the plural school.

2. Between the virtual, the real and the city

It is an interface context concerned with developing processes and the active participation of citizens, being an adaptive value for their knowledge and linking them it with the local development policies. Focuses on their contributions, setting it in the local context and giving them a meaningful format. Is able to meet the specific needs and the specificities of the communities. It is also an elementary resource, able of propel the exercise/academic research through the training structures near a globalization/localization of the participatory processes and the social challenges at the national or global level. It is a context with resources (human, physical, technical) facilitators of human and local development as a democratic, cultural and plural process. The participation of each one within the group as well as each group by itself and also the negotiation, are assumed as structural axes. They emerge as facilitators for this participation and emerge with the purpose of co-responsibility, to build a local and regional force. They also promote the initiative, the culture, the organization and information management, the cooperation and the representation of the community, face the various authorities which govern the public administration and management (Villar, 2007).

2.1. Finding the signs of tomorrow's education in the city

In this context, tomorrow's education (embodied in a concept of urban education) emancipate itself with the supported of technology. It provides new learning spaces in a perspective for generate autonomous individuals. Facilitates extended and interdisciplinary learning and enables an integrated and contextualized decision-making. Widespread availability of affordable and innovative information technologies represents a potential opportunity for improvement/innovation on business processes or for enhancement of life quality of individuals (Fernandes, Machado & Carvalho, 2011:1-2).

Presents itself competent to participate in adaptive development of the lifestyles that will emerge in knowledge and intelligent society. It is in the expression of urban education is projected as a maximum exponent of citizenship, able to integrate individuals in non-violent living spaces, constituting themselves as a device for peace building and social cohesion.

The city attempts to account from constraining harmful effects. With such intention, attempts to generate safe promoting device, entrepreneurship, quality, innovation, security and work development, from science and technology through education accessible to all, as an expression of emancipated citizenship. The city is constituted as a space for social, cultural, economic, religious and political unification with an historical memory of modernization, progress and multicultural exchange. It stands as a dynamic niche of lives transformation a on a global scale. It is an incubator for educational change and reforms implementation. We demand a lot to the city. Cacciari (2010: 27) claims to be important the questioning about what we that ask to the city:

We ask it to be a space where all sorts of obstacles to movement, universal mobility, and exchanging, come down to a minimum. We also ask it to be a space with communication places, to be a space with fertile places in a symbolic point of view.

Unfortunately we ask both with the same intensity. But they cannot be obtained simultaneously and, therefore, our position on the city appears increasingly and literally schizophrenic.

However, the author does not understand it as a state of despair but as a challenging state that fascinates with the ability to surprise at every moment (Viana, 2011:165-166).

However, it's an accessibility that highlights the needed to regulate the quality of available information, with strong implications for the knowledge building. It's an accessibility that gains strength when dialoguing with the different players in the planning, management, city development and in the organization of new learning spaces. We ask ourselves about:

- What is the relationship with the reality, which interactivity with the environment it allows for?
- What is the relationship with the everyday lives of citizens?
- How to explore the digital, technological and interactive experience?
- How to explore the mix between virtual and real?
- What is the articulation with the exploration of metropolitan wireless high speed network?
- Which dialogue should be developed between engineers, architects, educators, builders, rulers? Which dialogue should be developed between key stakeholders involved in the organization/image/profile of the city? Which dialogues have already been done?

The urban education, expression of tomowrow's education, is presented in a multidisciplinary approach, where multiple sources of knowledge could be available and used in an integrated way in the learning process and made profitable if leveraged by information and communication technology (ibid., 2011:174).

Conclusions

Innerarity (2009:103) states that “space isn’t the receptacle of our actions but what comes between us by our actions, so that, each society produces its own space.” We would add that not only the society but also the local communities. Information Systems assume, in this new concept of space, a useful role in the creation of articulated process with human activity in order to allow that each individual, each community, can view and use it in an open an evolutionary way, fleshing out the concept of global spaces that could accrue to the development of cities and their habitants, if it is grounded in the value of urban education.

Information and communication technologies are an asset to transpose the survival barrier. It is very supported, set on fixed and static structures, in the contents and in objectivity. This inhibits creativity and overshadows development giving the illusion, to be safer. They are an asset for the communicational emancipation of the individuals of any age (supported in the processes, activities, creativity, senses appreciation and meanings assigned by different actors and residing in the contingency, which means not to fear to assume risks) (ibid., 2011:168-169).

Fernandes, Machado and Carvalho (2008) reported that, over time, the organizational, technological and social evolution brought a change to information systems, usually a monolithic organization, with clear objectives in complex information systems, distributed and technologically heterogeneous. Today, a digital world is emerging taking precedence over the real world. Everything has or produces information in real time. According to the authors, the world gets computational communication capabilities and is increasingly governed with digital information and processes. Each day it produces more quickly more, information about everything and everyone. Therefore, the space presents to us swinging, claiming to be organized in processes which are linked to the uniqueness of human activity.

A map displaying the location of learning opportunities in the city of Guimarães will be developed as well as it will allow sharing information about the use of the different contexts between users. (Development of a learning community of teachers/professionals, families, children of different contexts, empowering families and promoting learning and active and creative citizenship - Promoting a culture of collaboration networks for education/development/learning, taking advantage of web technologies - Development of core research groups for intervention and mediation (based in the universities), instigating and challenging in order to create the conditions for reflection, for the construction of knowledge mapping and monitoring services and learning opportunities in the city - Elaboration and implementation of monitoring devices and continuous and periodic assessment of processes and outcomes (forums, questionnaires etc.).

Every map that identifies the entities, educational potential or training in the city will match the main global communication device. Its implementation will use the most advanced Technology and Communications Information, including service-oriented web and social technologies (service-oriented architecture and cloud computing). Based on this technological infrastructure, each city map will be supported by a multilingual ubiquitous platform.

This multilingual ubiquitous platform will respond, in an integrated manner, to the different needs of trainers, learners and employers at different stages of education or training, as a particular support to fulfill the educational/training potential. It aims to continuously construct, in a participated and shared manner, the sustainable development of intelligence, characterized by the ability of every citizen to identify and develop skills necessary

for his/her well-being, creative and active participation in citizenship, inclusion and employability in a knowledge society, within a perspective of lifelong learning. It also aims to be itself a process capable of providing policy-makers (local, national and European), as well as trainers, teachers, learners and employers with a global space (local, national and European) of common and transparent objectives in the community action plan regarding programs, strategies regarding education and training.

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