

Summary

VARIATION OF VISUALIZATION AND ITS' LEVEL USAGE IN GEOGRAPHY LESSONS: EVALUATION OF EXPERT TEACHERS

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The modern visualization is created to help in education processes and is oriented to the evaluation of knowledge. Visualization in science as an essential teaching/learning tool has become of great importance nowadays because the technological progress is raising high requirements for education. External visualization (pictorial representation in a visible form) of objects is transformation of images from 2D to 3D using various types of moving representations. There was organized research to find out level of visualization usage in geography lessons.

The research results enclose that computer based visualization is used rarely in nowadays lessons. Teachers mostly use classical visualization tools such as real demonstrations, visualization in paper, drawings, physical models and chalk and board representations. Often geography teachers use traditional visualizations. They use computer based visualization rarely. Computer graphics, computer modeling, computer animation and other tools are not popular in schools. Teachers are thinking that progress of visualization usage was influenced by good economical conditions and good material base in schools: lot of teachers have computers in their classrooms. They have internet and computerized auditoria. Also, teachers have noticed that computer based visualization stimulates cognitive abilities and helps to organize effective education. The lack of computer based visualization was stated because of weak material base in some schools, low teachers' motivation and opinion that classical methods are better.

Key words: visualization, geography lessons

THE USE OF THE BLOG AS TOOL OF AID IN THE EDUCATION OF SCIENCES

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Introduction

The changes of structure and functioning of the society developed by the innovations of the information technologies and communication (TICs) can offer elements to enrich the basic meeting between who learn and who teaches. If used pedagogically, environments and resources on line can make possible that the thinking activity, the critical attitude, the power to decide capacity and the conquest of the autonomy practical are always contemplated.

Currently, the school, in its social function, starts to incorporate the demand of the digital inclusion. The school to start to be responsible for the systemize transmission of the knowledge, and at this historical moment also fits it to favor the access and the appropriation of codes and proper languages of the digital age, in particular of the Internet.

The communicative potential of the necessary Internet to be explored, in the direction to fortify one practical pedagogical one dialogued, that creates chances for the work in net and the development of the capacity to cooperate, to learn, to have access and to produce knowledge. The Internet has of many technologies that make possible this. One of these technologies is blog.

This work has for objective to present a bibliographical research carried through to identify the uses of blogs as pedagogical tool in different educational contexts in Brazil and to identify the use of blogs as pedagogical tool in the education of sciences in Brazil.

Conceptualization of TICs

The tools of information and communication, the TICs (technologies of information and communication), had become important allied the process of current education and learning. They are the technologies that we use stops communicating in them and informing in them. As examples of this technology we have: telephone, television, radio and tools of Internet.

The TICS can be important instruments of mediation between the knowledge and the learning of the pupils. Inside of the TICs favored by the dissemination of the Internet that earned great prominence in these last years can be cited blog. Currently, it is possible to use it to deal with practically any subject.

Description and conceptualization of blogs

Historically, the beginning of the use of blog can be considered when in 1997, the programmer Jorn Barger conceived the term weblog. Jorn Barger defined weblog as a page of the Web, where any person could place a message displaying all the other pages that considered interesting and joined in the Internet. Later, the term was modified for the definitive term blog.

With the creation of the Blogger in 1999 they had started to appear many blogs brought up to date some times to the day, with reflections of the authors of the same ones on many subjects, as for example: work, school, music, sports, sciences and others.

In Brazil, by means of a marketing strategy, in 2002, the Blogger Brazil was launched during the process of inauguration of Globo.com. Quickly, if it became one of the biggest

hosts of blogs of Brazil. Becoming in such a way one of the responsible greater for the dissemination and spreading of the use of blogs in the country.

With regard to the implantation of blogs in educative environments, the first nets of professors to use this technology had appeared in the *blogosfera* (term that represents the world of blogs) anglian-saxônica with the British vestibule Schoolblogs.com (since 2001) and the group Education Bloggers Network, with headquarters in U.S.A.

Blog was conceived to be as a daily one in the Internet, where the information would be organized of most recent for oldest. Simplifying, would be a form to make registers of any type of information in the Internet.

Weblog more came of the junction of the words web log, where log represents a register and web is about the web or net that is the proper Internet. They are about pages in the Internet that use the data-communication protocols and count on a server to store the information that present.

In the one structure blog, basically, all present a line of time for the posts. Blogs can deal with a infinity of subjects. Amongst these subjects they can be daily, jokes, links, notice, poetries, articles, ideas, photographs and all than either more possible one for its update. It can offer to an excellent form of communication, allowing that groups and people interact without secular restriction, therefore the reader can register commentaries concerning what it was displayed in blog.

At the beginning the preparation of one blog demanded of its author a knowledge of computer science and knowledge of codes HTML and a produced small farm where pages could store web. Later small farms for the construction had appeared of blogs, usually at no cost to the user, that incorporate a software that allows the writing of posts without the user has that to dominate programming. This facilitated the access of the users to this tool and currently, any person with small knowledge of use of the computer could create and keep one blog. To make this, it would be necessary the access to the Internet and the cadastre in one of the many available services in the Internet.

Methodology

The focus of this research was an inquiry on blogs Brazilian created with the objective to divulge subjects related to Science Education in the areas of Biology, Physics and Chemistry. This study was initiated exploring as researchers had searched to investigate the use of blog with educational objectives in the Brazilian educative scene. Such search is initiated in such a way to establish the context of the use of this tool for educational ends. To follow a survey of blogs related to Science Education was made.

The survey of blogs Brazilian related to Science Education was carried through in the period of 10 of October of 2009 and 20 of October of 2009. To carry through the mapping the site of BlogBlogs search was used. BlogBlogs (<http://blogblogs.com.br/>) is a gratuitous service of search of blogs Brazilian. The service of search of the BlogBlogs offers to three options of search (blogs, post and authors) through writing of words keys. After the accomplishment of the search, blogs is listed by the heading, address, name of the proprietor and description.

Related the carried through searches to locate blogs to Science Education had been made by the option blogs using the words keys: biology, physics and chemistry. The resultant information of these searches had been inserted in tables that had according to allowed to the to categorize education area, the objective (as detached above considered for Gomes) and the level of education.

Blog as pedagogical tool In the schools blogs can have some purposes.

They can be the vestibule of the school, its form of if opening and if showing for the world. They can be the specific space of action spreading or projects. They can serve as portfolio of professors and pupils. They can present resources in the accompaniment and management of the school.

The diversity of blogs related to education is sufficiently ample and integrates blogs of professors, of pupils, of you discipline and the schools. In you discipline them to all is possible to use blog as pedagogical resource and educative strategy that can be production of texts, analysis of literary compositions, report of visit of studies, publication of photos, drawings and production of videos.

Second research carried through for Claudia Colla, from collections of information of blogs of the Google Search, in 2007, when looking for and typing the expression blog as pedagogical tool, was found ninety and four links and in 2008 met two a thousand one hundred and sixty links for the same words. According to author, this indicates that many pedagogical educators are using blogs in its practical, but not yet has academic research that they indicate effectively how many they use it to educators in classroom (COLLA, 2008).

Maria João Gomes searched systemize the possible pedagogical uses of blogs considering two possible categories: a) as pedagogical resource, and b) as educative strategy. E as pedagogical resource considers the author who blogs can be used: a) as an access space specialized information and b) as a space of it shows of information on the part of the professor. In the modality of „educative strategy” blogs can serve as: a) a portfolio on line, b) an interchange space and contribution, c) a debate space and can be added, d) an integration space (GOMES, 2005).

Pedagogical resources are instruments that allow that the pupils construct to the o knowledge. They are mediating to facilitate and of this construction. It can be cited some

examples of pedagogical resources: audio appearance books, games, computers, resources, mathematical exercises, blogs and others. According to Gomes and Lopes (2007), blogs that they are used as pedagogical resources follow two boardings: blogs that they act as information source and are indicated to the pupils for the professors or blogs that they are created by the professors to it shows to the pupils excellent information on disciplines that they give.

Blogs that they can be used with information repository are those, according to author, that it shows information specialized on one definitive subject that they have relation with disciplines to be given or the spaces created by the professors to offer extra information to the pupils.

An example use of blog inside of the pertaining to school context sufficiently spread is the presentation of portfolios of works developed inside of the school for professors and pupils. In these blogs we can find information of the proposal educative of the school, information of activities, projects developed for professors and pupils. Many of the Orienting Professors of Educative Computer science of the city hall of the city of São Paulo construct blogs established in this model.

The pedagogical or educative strategy, is the way as a pedagogical resource will be used. As Gomes and Lopes (2007), in the boarding that considers blogs as half for accomplishment of activities, that is, „educative strategy”, the learning process is centered in the pupils who play the roles of authors and co-authors. They can be used as portfolio digital to organize and to support the learning or as evaluation instrument. Beyond allowing the construction of a digital portfolio with resources of sound, image and video, the use, in this practical, she makes possible to offer contributions of third (professors, pupils and other users of the Web) for the area of commentaries. One another form of use is the construction of blogs that they serve of spaces to the development of activities of contribution, interchange, debate and integration between pupils they of the same group, different groups and even though of other schools or countries are. With blogs it is possible that the activities gain more visibility and if they become cooperative more, therefore these allow the access in world-wide scale and the contribution of others is of pertaining to school community (Gomes, 2005).

The stimulator of the elaboration of blogs for the proper pupils allows that the same ones beyond having contact with technological tools in the creation and maintenance of blogs, still can have contact with the research of small farms, analyzing its content, veracity and credibility for insertion in blog.

Blog as pedagogical tool in the education of sciences.

As Barro, Ferreira and Queiroz (2008) exist few studies on the use of blogs in the education of sciences. The authors cite two works related to this area: Blog, wiki and digital conceptual maps in the development of projects of learning of pupils of basic education

(Dutra and cols., 2006) and Blogs for physics learning and chemistry (Moresco and Behar). The first work shows the use of blog as of development of research half scientific, activities and interaction between pupils register of. As the work points proposal of the professors of whom educational pupils produced blogs in the physics area and chemistry with the objective of that the related pupils published links to these areas.

In this work, to show the use of blog as pedagogical tool in the education of sciences one searched to investigate in the context of blogs Brazilian, which are blogs created with the objective to divulge subjects related to Science Education in the areas of Biology, Physics and Chemistry.

In the searches carried through in the Blogblogs, they had been located, in a universe of 200 a thousand blogs, the total of 106 related you discipline to them of Biology, Physics and Chemistry. As it shows the picture below. In annex, it meets listing with the addresses of blogs that they had been part of this sample. These blogs are not mentioned necessarily to the educative use.

Table 1 – Relation of number of blogs you discipline how much them in Science Education

Discipline	Number of blogs
Biology	42
Physics	59
Chemistry	5
Science in Basic education	0
Total	106

When analyzing blogs elaborated in these areas, can be raised the following ones given related its pedagogical use:

	Blog as pedagogical tool	
	Categories	Number of blogs
Physics / Chemistry / Biology	Pedagogical resource	101
	Educative strategy	5
	Total	106

During the mapping it was possible to identify the following pedagogical uses of blogs, as pedagogical resource in 101 of them and as educative strategy in 5 of them.

The data show that blogs can easily be used to function as repository of information (Gomes, 2005), since 101 spaces had been created with the objective to divulge information related with the area of Sciences. However, it is important to emphasize that they must suffer a multicriteria election, as for the divulged information, before being it shows

to the pupils to guarantee the idoneousness of the information, therefore in some it was not possible to identify clearly to the author of the content and the veracity of the divulged information (Gomes and Lopes, 2007). It is important to detach also that many of these blogs does not contain information directed exclusively toward area of Sciences, being been important the paper of the professor in guiding the pupils to identify this.

Amongst these blogs blogs had been chosen two as analysis example according to definitions of Gomes. Blog „Bioconhecer” is a good example of blog in the biology area as access space the specialized information, that is, a pedagogical resource in a first one to look at, but when analyzing better blog is observed that it has elements of pedagogical strategy. Posts with the subjects of acid nucléicos, marine animals, viruses and others exist. As blog was constructed by a student of teaching in Biological Sciences, it can be considered as pedagogical strategy. Blog still possess space of related article interchange the biology area. Posts that excites the readers to clarify its doubts. On can be an opened canal to share information line, to be a space of contribution and interchange between students, that is, a pedagogical strategy, as pointed for Gomes (2005). The others blogs to locate that they also meet in this category had been produced by graduation students. One notices, then that it does not have blogs produced by students of Basic or Average Education.

The image shows a screenshot of a blog page. On the left, there is a post titled "ACIDOS NUCLÉICOS, TRANSCRIÇÃO E TRADUÇÃO: UM RESUMO". It features a 3D illustration of a DNA double helix. Below the illustration, the text reads: "1. Conceitos Gerais. São as moléculas com a função de armazenamento e expressão da informação genética. Existem basicamente dois tipos de ácidos nucleicos: • Ácido desoxirribonucleico – DNA • Ácido ribonucleico – RNA". On the right side of the screenshot, the blog's header is visible, featuring a cartoon character and the text "Desvendando mistérios... curiosidades e muito mais!". Below the header, there are navigation links: "Feira de Ciências", "BioLógica da vida", "Ponto ciência", "Eu não entendo Biologia", "Aulas de biologia - Prof. Xandy", and "Prof. Neto Bio". At the bottom right, there is a bio for "JOSÉ ANTÔNIO BEZERRA DE OLIVEIRA IGARASSU (RM RECIFE), NORDESTE/PE, BRAZIL", who is a graduate student in Biological Sciences (UFRPE) and a technician in Electromechanics (SENAI-PE).

Figure 1: Blog „Bioconhecer” (available in <http://www.espacobio.blogspot.com> Access in Dez/2009)

Blog to follow was elaborated by a professor of Biology. It possesses information specialized on different subjects and content of lessons of the groups with which the professor works. This blog can be considered a pedagogical resource (Gomes, 2005) in the area of Education of Biology. It can be used by other professors as source of information for its lessons.

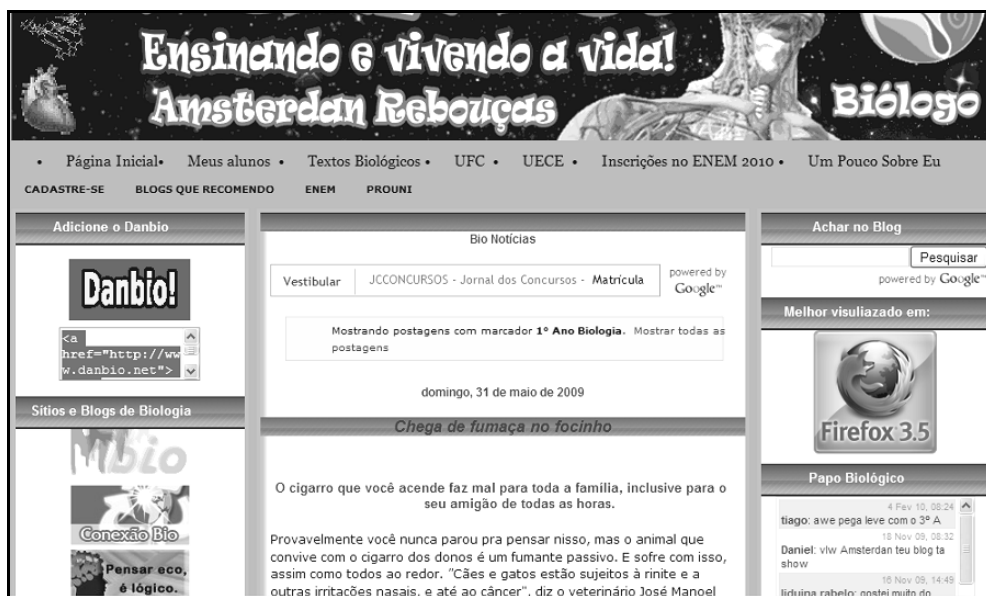


Figure 2: Blog „Teaching and Living the Life” (Available in <http://www.danbio.net/> Access in Dez/2009)

Conclusions

Currently, the use of the Technologies of Information and Communication (TICs) are an important tool to the education process and learning in Science Education, but the use of these by itself is not guarantee of success to the construction of the knowledge. It is important that the use of the TICs is planned, having the pupil as central element of the learning, and values the interaction and contribution allowing a more significant learning.

Blog possesss great potential to be used as practical tools in the educative ones. Beyond being a playful environment, sufficiently known of the pupils and to attract great interest of the young, it is a gratuitous tool, of easy use and possesss resources that allow the accomplishment of interactive and cooperative educative activities. But, for its better exploitation in the environment of education and learning is important that the professor dominates its use, identifies its potentialities and has notion of as it can be used.

This work considered to carry through it a preliminary survey of the use of blogs in the area Education and, specifically, in the area of Education of Sciences. It can be observed that, taking in consideration the universe of more 200 a thousand blogs that they exist in the BlogBlogs, the number in the area of Education of Sciences is still little expressive. I concluded, also, that the majority of them serves as data base of information, while few serve of space for accomplishment of educative activities, a space of knowledge construction.

From this preliminary survey, it is possible to carry through a study that allows to analyze of that it forms the interaction and the contribution can occur enters the participants in the

use of blogs for the accomplishment of educative activities in the education of Sciences. Many do not exist blogs constructed with this objective, as evidenced in the preliminary research, therefore the proposal is to elaborate blogs with contents of the area of Sciences in Basic Education.

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Summary

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This work has for objective to present a bibliographical research carried through to identify to the uses of the communication technologies and information (TICs) as blogs assuming the role of pedagogical tool in educational contexts in Brazil introductory and focando in the identification of the elaboration of blogs as pedagogical tool in the education of sciences in Brazil. The present work points a quantitative-qualitative research of blogs in the area of Education of Sciences. It still approaches the conceptualization of blog and strategies of categorização of the same ones with educational objectives.

Words keys: Blog, Education of Sciences, Information and Communication Technologies.