

T-QUESTIONS - A COLLABORATIVE LEARNING ENVIRONMENT THROUGH EAD, INTEGRATION USING THE WEB AND DIGITAL TV

Arapiraca – AL – May 2012

Maurício Vieira Dias Júnior - Universidade Federal de Alagoas -
mauriciodias.junior@gmail.com

Fábio Paraguaçu Duarte da Costaⁱ – Universidade Federal de Alagoas -
fabioparagua2000@gmail.com

Category: C

Education Sector: 2

**Classification of Areas of Research in Distance Education
Macro: E / Meso: K / Micro: N**

Nature: B

Class: 2

RESUMO

Given the necessity of obtaining learning through new technological means currently exist, given the young people are increasingly connected these new features, such as digital TV, and based on one of the learning sciences titled: CSCL (Computer-Supported Collaborative Learning - Collaborative Learning Computer assisted), this paper aims to boost school issues mid-level, providing a collaborative environment interaction, in order to promote learning between the teacher-student relationship with the primary tool, the means of entertainment interactive television in which the student is after school. It is proposed a structure that connects the Web and digital TV return channel via online, which in addition to promoting distance education among students and teachers, and also possible interactions of the type F2F (face to face) with the medium in which the student is inserted, increasing the collaboration of actors of this medium (such as parents, siblings, friends, family, student) to "instigate" a helping hand to answer certain questions pre-entered by the respective teachers of the course selected.

Palavras-chave: t-learning; ead; collaborative learning; NCL-Lua; Ginga

1- Introduction

Technological means are being launched every now and at the same time, add a number of features that are not limited to its main function. We can cite, for example, smartphones, which includes the aggregation of diverse technological resources like the internet connection, film, photograph, video conferencing, GPS and others that surpass the simple and basic function call someone.

In this same understanding, comes in Digital TV, a very different TV Analog TV, considering what she can deliver the resources attached to a single device, in addition to high resolution quality picture and sound, for example: access control and content protection, access to banking services (T-banking), health services (T-health), government services (T-government) among others and in particular with regard to this project: services educational (T-learning).

There is no doubt the power that television has on a population, especially the Brazilians, for this, simply look at official data from IBGE - Brazilian Institute of Geography and Statistics, which according to PNAD - National Survey by Household Sample (2008-2009), 95.7% of the population has TV, while only 34.7% have a microcomputer and microcomputer statistical decreases with accessing the Internet: 27.4% of Brazilian homes.

As shown in ^[2], ^[3] and ^[4] Digital TV in Brazil was regulated with social purposes, among them the focus for distance education - Distance Education, as stated in § 2 of Article 1: "to promote the creation of universal network of distance education."

Today's computers have various educational resources, but at the same time has also several applications that "compete" with a possible learning through the computer, which end up becoming a barrier to education through this medium. We highlight the social networks (Orkut, FaceBook, Twitter etc.) that affects the time to learn something to engage the interaction of these tools not as educational as well as not providing a face to face interaction with a larger amount of people attending the same time in front of a computer - no more than give to have 3 people following each computer at a time.

In ^[9] education promoted by the Digital TV will achieve the highest realism of interaction, there are many channels and resources to access digital

content courses and conducting discussions with experts and students, as well as the production of fine classes for the students to access the rhythm (day / time) you want with better quality than current Internet.

Thus, the TV has a power to persuade impressively in Brazilian homes, thus creating a great hope to achieve significant improvements in several sectors, including education.

This work aims to create a learning environment for promotion of distance education and collaboration in the form face to face (F2F) for the acquisition of knowledge through questions previously prepared by teachers on the Web that will be available via the return channel for students to share knowledge by digital TV.

2- Theoretical

2.1- Digital TV and WEB

Brazil has created a middleware called Ginga and its own transmission system SBTVD - Brazilian System of Digital Terrestrial TV, which was developed by the laboratories and Telemídia-PUC/RJ Lavid-UFPB, which sought what was best of the existing, the example of Japan which has the middleware ARIB BML-transmission system and ISDB-T, and adopted, for example, video compression MPEG-4 H.264, and today as well as Japan and the Philippines, have also adopted this standard almost all of Latin America.

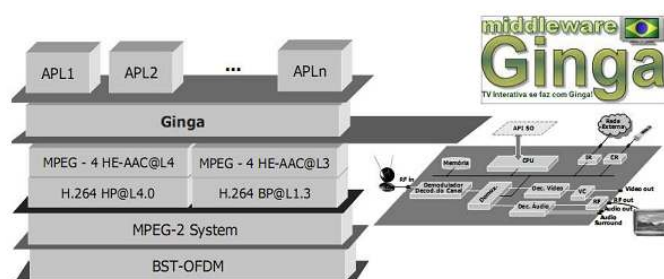


Figure 1. SBTVD benchmarks, including its middleware Ginga ^[1]

Ginga ^[1] is a software layer mediating between the low-level layers (such hardware, operating system and / or system resources) and applications, as shown in Figure 1.

Through this middleware becomes possible interactivity, above it are the applications (as shown in Figure 1, the layer that contains the following applications: APL1, APL2, ..., APLn) that are developed in declarative

languages and / or mandatory, NCL-like the moon, to intermediarem interaction with access to the return channel (channel access to the Internet) or not. The television sets containing this digital converter (or also called set-top box) with the embedded middleware Ginga, which includes the use of this feature, receive the seal DTVi - interactive digital TV. Digital TV with connectivity via the return channel can reach the internet, with it, the Web becomes a partner providing greater interaction and greater possibilities for inclusion of content, as was promoted by this project.

2.2- Collaborative Learning

According to ^[8] every day we make countless decisions based on the activities of those around us.

In line with this thinking, ^[11] relates this learning format based on the concept of the theory of the ZPD (Zone of Proximal Development), which would result from the interaction of the individual with the social environment in which progress can be promoted development of learning, beyond its current, with the help of other individuals. The individual is driven by interaction with other individuals, to create a new concept, a new learning.

According to ^[10], on this theory, the collaboration takes place exclusively in the social sphere where individuals are analyzed as a group product: a person who explains the other the subject matter it is not solely responsible for the learning process, but all The group is co-responsible for that response. The answer was only created because of collaboration and unity of the participants occurred during one learning session with the participation of all.

Therefore, it is necessary to highlight some possibilities already glimpsed from a television environment for the promotion of education. ^[5] lists some possible association with education DTV, enabling its realization:

1. the democratization of information and education may be shared by different generations in one family or friends from the living room;

2. to be a major equipment, the TV will not only allow interaction of the student-teacher and peer group, but will also allow the family to share this knowledge, since television is a device that traditionally allows the socialization of individuals;

3. the consumer by using the standard digital TV in standard or high definition will have access to education courses that require detailed drawings such as the use of depth or using the third dimension;

4. teleconferences and video conferences may be held, and discussed being assisted by anyone of the same family interested in learning or in a specific topic under discussion. That is, learning becomes collective and encouraged by all;

5. the use of recreational and entertainment content available to students. From home, they may be in contact with the authors of a program or course of distance education teachers, giving new dimension to what is called collaborative production and collective;

With respect to the CSCL - Computer-supported collaborative learning, this is an area of learning sciences that studies how people can learn together with the help of computers. Since ^[6] poses as an educational strategy in which two or more subjects construct their knowledge through discussion, reflection and decision-making, and, where information resources work, among others, as mediators of the teaching-learning process.

Importantly, the difference between these two concepts for learning: Cooperation and Collaboration, defined by ^[7]: In cooperation, the work is shared, each individual solves a sub-task to then join the final result, as all collaboration individuals are working together.

Based on this context was thought a form of collaborative learning through the support of the people directly involved with students through distance learning promoted by the Digital TV, where they also have the participation of family members and / or friends for the resolution of issues related to problems issue addressed in the classroom.

3- The Proposed Collaborative Environment

3.1- Logical Structure of the Learning Environment: T-questions

From the first day of class, the teacher will make the files available on Digital TV interactivity for students to get home, pierce in the USB digital converter that is connected to the internet and stay with access to digital TV module of the model T-questions.



Figure 2 – The logical structure of learning: T-questions

Teachers are responsible for each end of class, develop a question about subject matter that day / time and insert it into the Web-module, via a simple web page, and specify a username and password (each teacher has your own).

After insertion, the students will have available the subjects due to their questions, which can be accessed through Digital TV.

3.2- Development of Modules: Web and TV

The module WEB – Teacher

This module is provided a website for teachers at the end of each class at the end of days, enter a question concerning the subject matter covered during the class day.



Figure 3. Web-Module: Insertion of questions by the teacher

The module TV – Student

The following sequence of steps of operation of environment:

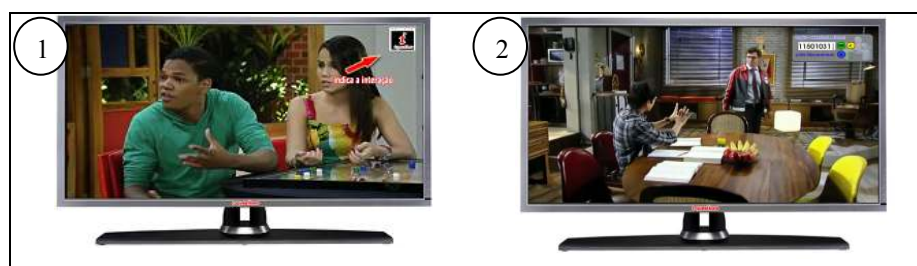




Figure 4. Sequence of steps relating to the operation of the t-questions

- Step 1:** This is the view of the matter, with the participation of some family members, which may be watching any programming (in this example, a novel) in his usual moments of entertainment, and at the same time, for a range of novel, or any moment, the key trigger of interactivity (via the TV remote control);
- Step 2:** After the key thrown interactivity, will be shown the login screen, where the student will enter your registration.
- Step 3:** After the key thrown interactivity, you will see a menu containing the disciplines that are available for the user to interact, respond.
- Step 4:** After selecting the discipline in the previous figure, the question will appear on that subject, which contains five possible answers and the user can, through the cursor on the remote control to answer it.
- Step 5:** On the screen of the question, you can access the tip of the teacher with the green button on the remote control, which collaboratively will help the student to support his answer.
- Step 6:** On the screen of the question, you can also access the comments from students in the class with the touch of blue button on the remote control, which in a collaborative manner will also help the student to support his answer.

Steps 7 and 8: After the user clicks the answer of the question, he will receive a return if the answer he said is correct or not, also containing a space to enter your comment will serve as a collaboration to other students.

4- Final Thoughts

This project was initiated two months practice with students in high school and Technological Institute of the Federal University of Alagoas in Arapiraca Campus, where we show some results as mainly the dynamics of setting the content of classes, with wide acceptance and efficiency .

This work is a new perspective to make it more attractive, in education, television programming, which currently has only passively with this feature, as we can cite the telecourse and Culture TV programs among others, where there reciprocal return of information, preventing the interaction.

It is important to consider the scope of t-learning, because there are several reasons for its use to support learning, among them it is widespread and cultivated in the everyday life of society, there is some security in the viewer that is transmitted through the content schedules of TV channels, and finally, the images and sound on TV with high quality standards seduce the individual, enhancing the learning experience richer.

There are currently several models of learning on the web related to education, the example of Virtual Learning Environments - VLEs, which associated with the distance mode collaborate effectively in the construction of knowledge in several areas. However, as quoted in this work, they are subject to "competition" with a variety of currently existing Internet connected computer, including social networks.

With the interactivity of the digital TV, we have an expansion of existing resources aggregated to learning, believed to have an environment rich in content and services.

Note

ⁱ Teacher Advisor - He is currently Associate Professor II of the Federal University of Alagoas.

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