THE CONTRIBUTION OF CONCEPT MAPS TO
LOLA – THE ON-LINE LEARNING LAB

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Abstract The need for continuous learning and professional-improvement has never been so strong. Driven by the process of economic development and its social and cultural consequences, pedagogy has been trying to encourage the teaching community to react to the demands and changes of the market, its products and processes. From this world perspective of constant changes due to the globalisation and technological evolution, comes one of the greatest challenges to education: the access to continuous learning, made easier to all segments of society, by the development of a new and creative model which answers to the needs of this society where knowledge ages in an accelerated manner and the production and circulation of information grows by the minute. On-line education becomes a possible alternative to address this issue as it makes use of a technology (the Internet) that allows the reaching of resources that were, up to now, unimaginable. With the objective of overcoming the learning/teaching model of reproduction and accumulation of knowledge, LOLA – The On-line Learning Lab was created in 2002. LOLA, product of TORRES´ doctorate dissertation, was awarded 1st place prize by the Brazilian Association on Distance Learning and the Brazilian telephone communications company EMBRATEL in the category Research. Its proposal is now being augmented by MARRIOTT with the inclusion of the creation of Concept Maps (CM) as both a reading and writing technique. Based on Ausubel's meaningful learning theory, it promotes - at the same time - the activity of both sides of the brain, the analytical/rational and the creative/intuitive, and the construction and the interpretation of its representation promote levels of cognition and communication of the highest levels. In this article, you will learn briefly about the activities developed by LOLA and will be shown how CM was incorporated into this methodology with a class of EFL students giving birth to "LAPLI – The Language Learning Lab – a methodological proposal for a hybrid course in a virtual environment".

1   Introduction

The world development model has been suffering profound alterations due to the process of globalisation of the economy and every transformational movement suggests processes of technological transition. Both developing and developed countries have been seeking to enable their people so that they can react to the demands and changes of the market, its products, and processes.

KENNEDY stresses this understanding, saying that "societies must take the challenge to prepare for the XXI century seriously, when competitiveness becomes the number one factor. An economy that is less and less able to follow the new technologies and to prepare its people, which has slow (or negative) growth rate and stable or falling per capita income while the demographic changes create new social demands, will be in worse conditions as compared to another one that is competitive and adaptable" (KENNEDY, 1993, p.395).

Every professional needs and has the right to continue his / her process of education, keeping him / herself up-to-date, as now the knowledge acquired at school quickly becomes insufficient and obsolete. The meaningful appropriation of the existing information and production of new knowledge to meet the demands of environments that renew and prepare themselves to the future, leads BARCIA (2002, p.A12) to defend distance education as one of the most efficient answers for constant updating, a fundamental factor for economic development. In distance-learning professional improvement, the ability to read, to understand, and to produce new texts becomes a need in the building of knowledge in all areas of instruction.

"The On-line Learning Lab" LOLA was created to propose an answer to the demands of this new knowledge society and to overcome the models of accumulation and reproduction of information.

2   The activities developed in LOLA

The goal of "The On-line Learning Lab" is to create opportunities for collaborative learning. In LOLA, the students (who work individually, in subgroups and in the larger group) collectively construct their knowledge by a constant exchange of information and points of view, by asking and answering questions, and by solving and evaluating problems.

Collaboration between pairs allows for a unique and coherent production from the larger group, contributions coming from the activities of sub-groups as well as individuals, as all of them are shared by all the members of the class by the publication of the activities.

These activities of LOLA both give sense to the groups work and at the same time make it dynamic. It is during the management of these activities that the members of the groups organise and interact between themselves, share roles, discuss ideas and positions, define sub-tasks; the whole proposal is elaborated, defined and negotiated collectively.

In LOLA, the pedagogical strategies are centred in the construction of knowledge and the collaboration between pairs or groups. This collaboration does not envisage a standardisation. It respects the students' individual identities because by sharing their different views they produce and grow together.

LOLA's projection is made by an adaptation of the methodological approach created by BOCHNIAK (1998, p.45 and following), whose activities consolidate the strategy of her Learning Lab and her doctorate. This developed the "Research Pedagogy" that enables students, research teachers and schools to develop a critical learning philosophy so much in demand in today's society. This pedagogy is based on three principles that are: to question the existing knowledge, answer these questions, and evaluate – not the content of the questions and answers but the activities of questioning, answering and even evaluating.

In 2002, the "Research Pedagogy" was complemented by TORRES with activities made possible by the use of technology: links, commented reading and group article, generating "The On-line Learning Lab" - LOLA. It is LOLA's activities, presented below, that allow the person to experience that rapture that is so much needed in the construction of knowledge.

2.1 The "Questioning" Activity

The questioning of the existing knowledge implies in elaborating questions, related to the issues tackled in the course/discipline. These questions are published on-line, always trying to go beyond the reproduction of the existing knowledge. For this purpose, we suggest that students avoid formulating questions that are merely conceptual (using question words like "what", "where", "when"), as they do not lead to a reflexive activity and consequently, do not prepare each other to be a researcher. What we try to demonstrate by this activity is that questions that lead to interpretation (using "why" and "how"), summary, analysis, comparison and application, develop the attitude of research in both student and teacher.

2.2 The "Answering" Activity

This activity involves the exercise of answering the questions formulated and published on-line by the students. As in the Questioning Activity, this activity is sometimes performed in groups, sometimes individually, to allow the student to experience the two situations, as they are completely different and equally enriching. When students work individually, they follow their own criteria. When they work in groups, they need to share their choice and negotiate meaning with the other members, thus practice their social skills.

In this exercise, two assumptions from Montessori´s Scientific Pedagogy are clear and interrelated: the assumptions of free choice and freedom with responsibility. In other words, students are free to choose which questions they will answer. However, they must answer the number of questions pre-established by the teacher.

2.3 The "Evaluating" Activity

The evaluation of the questioning, answering and evaluating procedures implies the development of an evaluation which focuses on the process. This activity is always developed in the big group, be it face-to-face, via videoconferencing or even by *Chat*, following that which was already planned with the group. This process of evaluating always occurs after the questioning and answering activities, developed individually or in groups. The focus here is on the evaluation of the process, not of the product.

2.4 The "Commenting on Links" Activity

The activity "commenting on links" involves the exercise of searching the Internet for texts, articles, information and then, publishing them with a comment, thus allowing the whole class to have access to different views of the same theme. This activity promotes the active construction of thought and the development of the students' intellectual autonomy by the questioning and re-elaborating on existing knowledge, ensuring that they are able to produce knowledge. In this LOLA activity, once again the focus is not on the teacher but it is

directed towards the group, who is made responsible for choosing the content to be discussed. In the traditional school, it is the teacher who selects the scientific truth to be presented to the students who then are expected to memorize what is presented. In the On-line Lab, the content is selected for students by students, who perform an active, collaborative, and reflexive role in the process of knowledge construction.

2.5   The "Commented Reading" Activity

In this activity, students discuss in groups about texts selected by the teacher. Each group is responsible for reading one text, which is discussed via Chat. After the discussion, one group has to elaborate and publish a few notes about the text, which can then receive comments from the other groups. In this collective process of critical analysis of the contents of the text, students exercise the management of heterogeneity (TORRES, 2002).

2.6   The "Production of Group Article"

The group article is the exercise of constructing a text about a theme related to their course/discipline and publishing it in the virtual environment. In this exercise, the individual and the group mix all the time. The students' personal universe also merges and a new universe is discovered by the group within LOLA.

In the first part of the exercise, students exchange ideas in their group in order to choose the theme they will be writing about. This negotiation happens by Chat or e-mail, i.e., in a synchronous or asynchronous way, depending on the means they choose to communicate. The members of the group have to overcome difficulties, conflicts, resistance and communication misunderstandings to produce knowledge collectively.

In the second part, students start writing the article. In this process, each member of the group writes his/her contributions, which are forwarded to the other members, who complement, reject, or add ideas. It is in this dialectical educational process, in which all members communicate with each other and act upon the text, that knowledge is produced.

It is possible to represent the dialogue for the construction of the text between the members of the group by the following diagram:
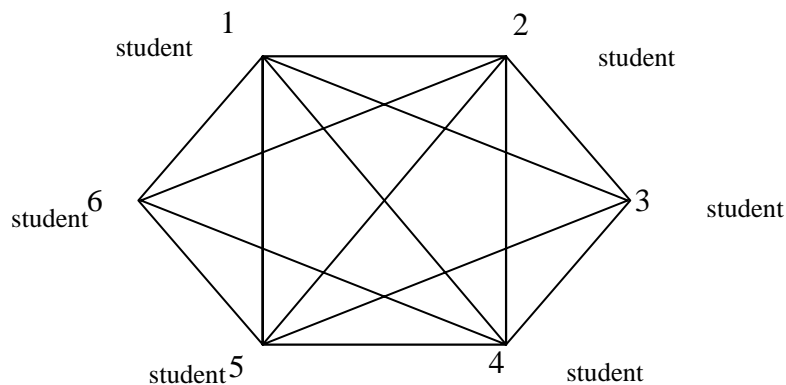
Each member of the group can interact with any other member, forming a communications network. All members of the group perform the role of writer, researcher, editor and critic (reviewer).

LOLA, described above, now receives contributions from MARRIOTT among which we highlight, in this article, the activity of building concept maps presented below.

3 Concept Maps

The use of Concept Maps (CM) is a powerful learning technique, which is being utilized by many universities and organizations worldwide. It promotes meaningful learning and its benefit and use is being studied and stimulated in Brazil by universities like PUCRS, UFRGS, UFSC and PUCPR.

Including pictures or not, concepts are written in boxes which are organized in a hierarchical form – from top to bottom or from the centre to the sides – and are linked to each other by lines which include linkage words (like prepositions, verbs, linking words) that express the relationship between these concepts.

CM is based on Ausubel and Novak's Meaningful Learning Theory (1963) and, as explained by Souza, "Meaningful Learning happens when new information is assimilated by a deliberate effort from the learner's part in linking the new concept to relevant concepts or propositions already existent in his cognitive structure." (SOUZA, 2003, translated by this author). In other words, the learner must wish to acquire new knowledge to be able to anchor it to previously assimilated concepts. By constructing maps, individuals use both sides of the brain (the analytical and the creative) at the same time, in an efficient way as they provide both a general and a detailed view of the subject being studied and encourage the solution of problems by new and creative ways (BUZAN, 2003).
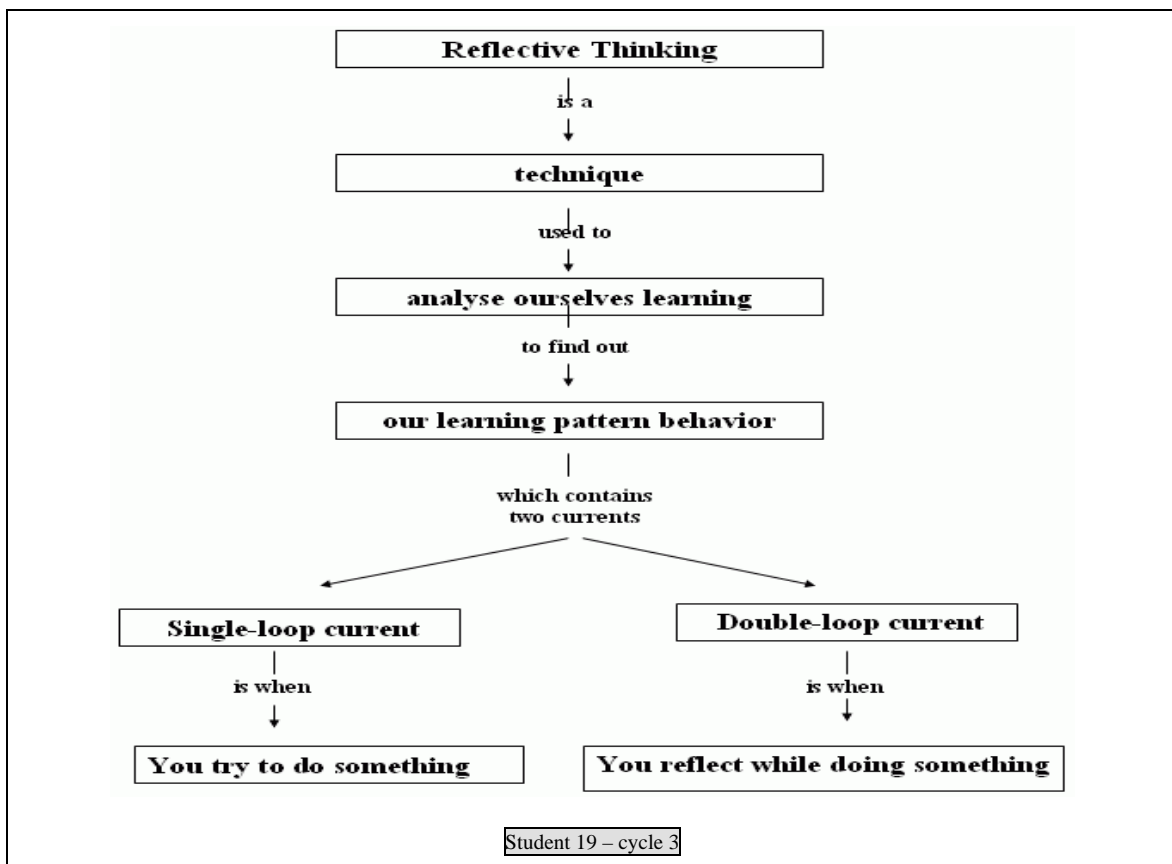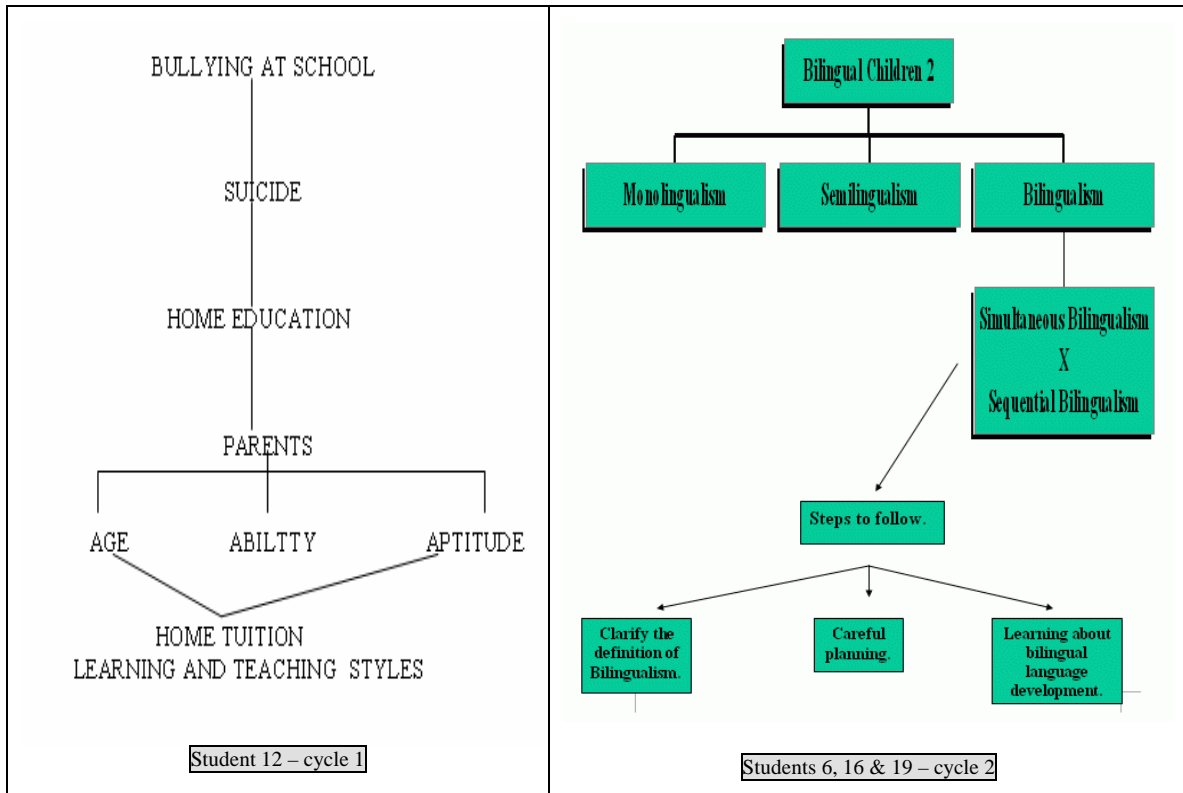
This is an interesting technique to use with mixed ability groups. Students who do not have much knowledge about the subject being studied or whose reading text is in a foreign language of which they have low-intermediate knowledge of, will tend to have more difficulty and therefore take longer to produce their maps which will be, in general, simpler, with fewer concepts and details, and fewer connections between the concepts. On the other hand, students who are more knowledgeable about the subject being discussed and are more proficient in the language being studied, produce more detailed maps, establishing more interconnections between the concepts and anchoring new propositions to previously acquired ones.

4 Concept Maps with LOLA in ELT

This experiment was developed with a class of university students taking English Language Pre-Intermediate II in the Languages Portuguese / English Course at the Catholic University in Curitiba, Brazil (PUCPR) from August to December 2003. The aim of the project was to develop English reading and writing skills in EFL with High-Intermediate level students using CM and the LOLA methodology in a hybrid course (50%-50%).

After inserting a link about a subject of their interest from the Languages Course (subjects chosen included "Educating Children with Autism", "Bilingual Children" and "Teaching English with Technology") in the "Commenting on Links" activity, students chose one of those texts / articles / links to work on collaboratively, either individually or in groups, and developed the activities of "Questioning", "Answering" and the "Creation of a Concept Map". In the F2F (face-to-face) class, students were introduced to Concept Mapping (its benefits, uses and how to create them) by a PowerPoint presentation elaborated by the teacher, and in the following class – a distance learning class – students consulted sites on CM on the Internet and could download the PowerPoint presentation if they felt the need to do so. When they felt ready, they started producing the CM. These students had three challenges: to learn how to create the CM, to understand how to build a map as part of a hybrid course, and to create it as part of a collaborative activity, i.e., to help their colleague understand their chosen text. The maps were created using the tools available in the software Word, posing another challenge to them as it is not a software dedicated to creating concept maps like CmapTools. Their work is published on-line, in Eureka, PUCPR's virtual learning environment.

Below you will find examples of students' work from each of the three cycles of activities we had in that course.

BULLYING AT SCHOOL

SUICIDE

HOME EDUCATION

PARENTS

AGE   ABILTTY   APTITUDE

HOME TUITION
LEARNING AND TEACHING STYLES

Student 12 – cycle 1

Bilingual Children 2

Monolingualism   Semilingualism   Bilingualism

Simultaneous Bilingualism
X
Sequential Bilingualism

Steps to follow.

Clarify the definition of Bilingualism.   Careful planning.   Learning about bilingual language development.

Students 6, 16 & 19 – cycle 2

Reflective Thinking

is a

technique

used to

analyse ourselves learning

to find out

our learning pattern behavior

which contains
two currents

Single-loop current   **Double-loop current**

is when   is when

You try to do something   **You reflect while doing something**

Student 19 – cycle 3

In the maps shown above, we can clearly notice the students' development in their understanding in how to make a CM: in the second map, the concepts appear in boxes and in the third one the student has used linkage

words. These maps were then reviewed by the students who inserted the links, and were used at the end of the cycle as a plan to write their articles from.

When asked about the usefulness of using concept maps as a reading and writing technique, students had a positive response, as illustrated below (translated by this author):

20/11/2003 17:50:05	Student 12	answer 2	2
They helped me when I needed to review some ideas. I was taken exactly to the part of the text that I needed.			

20/11/2003 20:54:58	Student 8	Answer CM1	2
I like it because it helps us understand linking words and summarize the ideas we want to express.			

20/11/2003 20:57:49	Student 19	CM_answer	2
As this was the first time we used CM, I can say that, at first, it was more of a hinder than of a help. But, as time went on, I got used to it and I learned how to use it. Today, I can say that it helps me understand the subject better and helps me write better as well.			

20/11/2003 20:59:37	Student 13	Answer	2
The construction of maps summarizes the main concepts of the text that we are working on and this helps when we are constructing our own texts.			

20/11/2003 21:12:10	Student 7	Answer_CM2	2
To construct a CM we need to work with the basic ideas of the text and if we need to write from these ideas/concepts we need to relate these key words establishing meaningful relationships between them and even discover new relationships that we might not have realised when we were reading the text but we came across when creating the CM.			

We feel that the incorporation of Concept Maps into LOLA has been very successful and it can positively help the development of students' reading and writing skills.

This methodology of including CM into LOLA forms part of MARRIOTT´s Master's Thesis on Technology in Education entitled "LAPLI – The Language Learning Lab – a methodological proposal for a hybrid course in a virtual environment" (publication due shortly).

5   Summary

The comprehension of what is read is fundamental when one is working with texts in a F2F or distance learning program. The inclusion of the activity to create concept maps into LOLA enriches this methodology as it offers a way to help students understand written texts and write individual and group articles and shows that, although distance learning is a methodological challenge, the possible pedagogical solutions are countless, especially when the aim is to overcome the paradigm of strictly individual work.

The pedagogical approaches that aim to attain Meaningful Learning through socializing encourage a greater exploration of technology mediated resources, specially those that promote the construction of knowledge and soften the physical and time distance that can be felt between interactive learners. So, the construction of knowledge, developed on-line according to the LOLA approach and complemented by the building of concept maps, leads us to a virtual integration, narrowing the gap between the agents in the learning-teaching process by the support given to the pedagogical communication. Some of the major difficulties in distance learning are then overcome: the use of practices that help in the comprehension of texts, the construction of group articles, the bridging of physical gaps between teacher and students, and, in the case of collaborative learning, the physical gap between the students themselves.

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