Critical literacy\(^1\): a cross-curricular tool-and-result in the teaching-learning activity

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This paper discusses the importance of critical literacy as cross curricular tool-and-result in the teaching learning activity. Based on the Socio-Cultural-Historical Activity Theory (Vygotsky, 1934; Leontiev, 1977), it discusses a teacher continuous education intervention program aimed at the teaching-learning of different subject areas mediated by different genres (Bakhtin, 1953). The tasks created by the teachers are analyzed and seem to indicate a view of literacy as tool-and-result. It turns the teaching-learning activity into a revolutionary experience since the students have a chance to learn the contents of the different school subjects through the texts they read.

*Key words:* Critical literacy, cross-curricular, tool-and-result, teaching-learning activity

**INTRODUCTION**

This paper discusses the importance of critical literacy as cross curricular tool-and-result in the teaching learning activity. Based on the Socio-Cultural-Historical Activity Theory (Vygotsky, 1934; Leontiev, 1977), it discusses a teacher continuous education intervention program aimed at the teaching-learning of different subject areas mediated by different genres (Bakhtin, 1953). It considers the mediational concept pertaining to the socio-cultural-historical activity theory (Vygostky, 1934/2002, 1930/2002, 1987 and Leontiev, 1977) as essential to constructing object-motivated activities. This research is supported by the international and national results obtained by Brazilian students in the PISA \(^2\) tests\(^3\):

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\(^1\) We view critical literacy and critical reading interchangeably.

\(^2\) PISA – Program for International Student Assessment
These results, together with a concern to transform the status quo of the educational conditions of public school in São Paulo, have motivated an Extramural program, PAC\textsuperscript{4}, developed by researchers from LAEL– PUC-SP\textsuperscript{5}. This Program is embedded within the Applied Linguistics perspective of studying human problems which are permeated by language, in order to find ways to help all the participants (including the researchers) overcome problems identified in their work/educational/research environments (Moita Lopes, 1998, Celani, 1998, Pennycook, 2004, Cavalcanti, 2005, Bygate, 2005, Rojo, forthcoming, Liberali forthcoming; Magalhães, forthcoming; Magalhães et al, 2006; Lessa et al, 2006).

The paper presents the context of the Program, the methodological approach for data collection and analysis, the theoretical background for this study, as well as the data analysis and interpretation results.

1 - CONTEXT OF THE PROGRAM AND THE METHODOLOGICAL APPROACH FOR DATA COLLECTION AND ANALYSIS

This paper discusses a teacher continuous education project - LDA\textsuperscript{6} - part of PAC - run by PUC-SP, a Brazilian University in São Paulo - aimed at the teaching-learning of different subject areas mediated by different genres (Bakhtin, 1953). Specifically, it describes, analyzes and interprets tasks developed by teachers of different areas. Essentially, LDA is a collaborative project in education, taking as a starting point the reading problems presented

\begin{itemize}
  \item PISA 2000 – 32\textsuperscript{nd} position among 32 countries
  \item PISA 2003 – 37\textsuperscript{th} position among 41 countries
  \item PISA 2006 – 48\textsuperscript{th} position among 56 countries
\end{itemize}

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\textsuperscript{3} data collected at INEP – National Institute for Studies and Educational Research - http://www.inep.gov.br/
\textsuperscript{4} PAC – Programa Ação Cidadã – Citizen Action Program
\textsuperscript{5} LAEL - ; PUC –SP – Post-Graduate Program on Applied Linguistics and Language Studies - Pontifical Catholic University of Sao Paulo
\textsuperscript{6} LDA : Leitura nas diferentes areas - Reading in Different Areas
by Brazilian students, particularly the poor score of that community in the exams. Its main objective is to work critical literacy of social genres (Bakhtin, 1953).

The project also aims to develop Teacher Support Teams – TST (Daniels and Parrila, 2004) to work autonomously with reading in different subject areas. The TST is understood here as a group of teachers from a single school that takes responsibility for a certain topic to be collaboratively worked with other colleagues from their own institutions. This group becomes responsible for the actions that lead to the transformation of their own practices and those of their colleagues. We understand that the TST leads to socialization and responsibilization of all involved in the Creative Chain of Activities (Liberali, 2006). Both concepts – TST and Creative Chain – are key to the understanding of PAC – LDA.

In LDA, the TST comprises three or four teachers from each of the 34 schools that belong to the Program. The TST, who are supported by the researchers from the university and the supervisors from the State Secretariat of Education (SSE), autonomously discuss and work critical literacy in different areas and ways to critically and transformatively act in their communities. In order to do this, teachers of math, science, languages, social studies, chemistry, and physics discuss how to critically read different genres in their own subject areas. They also discuss teaching-learning approaches to discursively engage in social practices through reading, and develop tasks to work with their students. In the case of the project here described, the emphasis was on comic strips, informative magazine texts and short narratives.

LDA develops a number of activities in a Creative Chain: workshops with researchers and TST; meetings with TST and school staff, mainly teachers; classes involving these teachers and their students; and the projects developed by students in their communities. We consider each of these activities instances of the Creative Chain under consideration for this paper. Although one can still find instances of reproduction combined with attempts at
creativity, the aim of PAC is the creative production of new cultural outcomes; that is, critical literacy.

As stated before, PAC is developed through Creative Chains of Activities which imply joint efforts in an activity, producing meanings which will be shared afterwards with other new partners through the senses (Vygotsky, 1934) that they bring to a new activity. Therefore, new meanings are produced carrying some aspects created in the first activity. Similarly, some of the partners from the second activity, when engaged in a third activity, follow the same path. It presupposes that features of the whole can emerge in the production of new creative outcomes and the cognitive re-organization of its creators.

In this paper, the focus is on tasks developed to teach History, Science and Mathematics. The tasks were, initially, designed by TST groups in workshops carried out by the researchers; they were later presented to and discussed with peer teachers in a pedagogical meeting; and finally, used in class with their students. In each workshop the teachers worked with a different genre and, in this paper, we are focusing on the photocopied versions of tasks designed by four TST groups to work with comic strips, consumption bills and informative magazine texts. The study was conducted within the Vygotskian theoretical-methodological research perspective in which “the method is simultaneously pre-requisite and product, the tool and the result of the study” (1930/1978). The analysis of lexical choices in the different genres and tasks concentrates on how language was integrated with the subject areas in focus as a tool in the construction of the scientific concepts of those very areas.

2 - THE THEORETICAL BACKGROUND FOR THIS STUDY

In this paper, activity is conceived as “a non-additive unit of the corporeal, material life of the material subject. (...) On the psychological plane, it is a unit of life, mediated by mental reflection, by an image, whose real function is to orientate the subject in the objective world;” and as “concrete, specific activities satisfies a definite need of the subject, is oriented towards the object of this need, disappears as a result of its satisfaction and is reproduced
perhaps in different conditions and in relation to a changed object” (Leontiev, 1977: 3 and 7).

Furthermore, the object is understood as a historical phenomenon. In their ideal and real forms, objects act as the leading force of activities (Lektorsky, 1984). “The ideal object as a product of ideal activity is valuable not in itself, not in its "corporeal", objectified nature, but only as related to another object, as a representative of reality. In other words, practice changes reality, while ideal activity is the reflection of reality” (Lektorsky, 2003). On the other hand, tools are created and transformed during the development of the activity itself and carry with them a particular culture; that is, the historical remnants from that development. So, the use of tools is a means for the accumulation and transmission of social knowledge. (Bannon, 2003). Tools can be either seen as tools-for-result or tools–and-result (Newman & Holzman, 1993/2002). The first one is identified and recognized as usable for a certain end; while the second is specifically designed to create what we ultimately wish to produce; it is defined in and by the process of the production of its objects.

This revolutionary activity, that is essentially and specifically human, transforms the totality of what there is. Teacher-designed tasks analyzed seem to indicate a view of language as a tool-and-result, which integrates tool and object. It turns the teaching-learning activity into a revolutionary experience since the students have a chance to learn the contents of the different school subjects through the texts they read. At the same time, they learn to read these genres critically.

In the project, different genres are discussed with the teachers in order to make them understand how language utterances are used in real life contexts in order to achieve some goals. Genres are discussed as a set of rules defined by members of a specific social group as capable of realizing a specific social objective (Bakhtin, 1953).

According to Dolz, Pasquier and Bronckart (1993), for the development of a particular genre, some language capacities are required from students: (a) the
capacity to understand and produce a specific genre in a specific situation, referring to its context and reference (action capacity); (b) the capacity to use different text organizations or discursive models (discursive capacities); (c) the capacity to use psycholinguistic operations and linguistic units (discourse-linguistic capacities).

The language as a tool in the teaching-learning of different subject areas can be seen in different aspects: the oral interaction between students and teacher, the books adopted, the texts, the exercises and the different texts from different subject areas chosen to be read.

The focus of the work discussed here is the reading tasks designed by teachers to deal with their subject areas. In these tasks, teachers deal with knowledge from their fields of work (mathematics, history, geography, science, among others) and use the reading of different genres as a transversal tool (Lessa and Liberali, 2006) to promote the learning of content that can be used in the constitution of students as critical agents inside their communities.

Critical literacy is a process of engaging in the social production of meaning (Cook-Gumperz, 1991) and it creates a transdisciplinary and transversal perspective against fragmentation, linearity and alienation (Kleiman and Moraes, 2001). In this sense, it is not understood as a simple process of decoding and recoding (Cook-Gumperz, 1991). In the project, critical literacy, as stated by Freire (1990: 1), is the basis for citizenship.

I have always insisted that literacy, thought of in terms of reading words, must necessarily, be preceded by the “reading” or deciphering of the world around us. Learning to read and write is tantamount to “re-reading” the world of our experience: the interaction between man and the surrounding world.

In this sense, literacy is a move from passive to active participation and to critical attitudes, behavior and assumptions about dominant groups. It is an endless inquiring exercise in critical reflection and forming one's own concepts, explanations and understandings about reality. It integrates reflection, action
and dialogue in order to develop strategies, knowledge and understanding to pronounce one’s own words instead reproducing those of others.

It is important to highlight that on Freirian literacy, students become subjects rather than objects of the world and ‘being in the world’ does not mean adapting to it, but transforming it and taking risks. This is an imperative argument for the project since there are some common sense notions about reading which permeate practices at school (Kleiman and Moraes, 2001) and that prevent transformation of practices. For instance, reading is still viewed as a waste of time (view mainly presented by soap operas: characters who read are escaping from the real world). It is seen as positive only when one has access to the greatest literary pieces. Another common sense assumption is that only language teachers should be worried about reading practices.

Kleiman and Moraes (2001) also add that, in our context, middle class students are taught to read in order to better defend their ideas, to position themselves in relation to relevant problems, to know about their cultural heritage. On the other hand, deprived students generally learn it so as to follow instructions and orders, to fill out forms, and to understand rules.

In this research, the reading practices with deprived students become tools in the teaching-learning activities. These activities depart from the need detected in the communities, that is, the bad score in national exams and the non-critical participation in the community life. Taking as a starting point the subject contents of different areas and aiming at the critical use and analysis of these concepts in the real world, teachers have planned and delivered their classes, joining daily and scientific concepts through critical reading. The initial tool-and-result achievement may be viewed as the critical reading of different genres to understand different school subjects and to promote community events for more scientific awareness and action towards the everyday problems they face. Figure 1 shows how this process occurs.
3 - THE RESULTS OF DATA ANALYSIS AND INTERPRETATION

In this section we discuss three units developed by TST: history, mathematics, science units.

Mathematics Unit

The unit prepared for the Math Class was developed by Gerson, a math teacher from a TST\(^7\). Departing from a unit on comic strips which aims at discussing energy production and water preservation, each teacher developed tasks according to their own areas. Gerson had the general objective of building up knowledge in maths through reading water bills. The area content and concrete object was units of volume. The teacher justified his choice for the work with water bills by stating that it would be a different and diverse way of reading, which would be more attractive and which is part of students’ lives. In a way, working with water bills could become a real concrete object in

\(^7\) The TST members were Clementina, Gerson, Marcos and Monaliza.
articulation with the images of future uses of water in order to fulfill their daily needs.

The Math task departed from students’ own knowledge of the world – the concrete object: Is water important for you? Do you need it? Do you often use water in your house? In what situations? Who supplies the water that reaches your house? Do you receive a monthly water bill? Why do you have to pay for the water you use? Justify your answer. The context of the school is a very poor community where many do not have plumbing or basic water treatment/sewerage. Besides, the stream nearby, which, for some, is the main source of water, is heavily polluted. In this context, the questions posed are extremely important to consider since it provokes the informed interaction between men and the surrounding world since it deals with a real need of the whole community.

The second kind of task proposed aimed at finding specific information in the text by carefully reading it: Where is the amount of water used in your house registered in the bill? Using the photocopied bill, find this information. These questions provided the ground to move from daily concepts to scientific concepts in the area of mathematics: units of volumes, as one can see from the following question: What word does the letter “m” stand for? a) measure; b) meter; c) more, d) less\(^8\). What about “m\(^3\)”? What measurement unit does it stand for?

The subsequent tasks focused on the development of scientific concepts of volume and geometrical spatial figures, always connected to water consumption. To conclude the unit, students were asked to perform the following task: based on what we have discussed, build up a geometrical spatial figure, with dimensions capable of storing the amount of water that represents your monthly consumption. Such question triggered critical reflection and the development of students’ concepts, explanations and understandings about their reality, concerning water consumption. The task

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\(^8\) Less is Portuguese is spelt with M - Menos.
integrated reflection, action and dialogue in order to understand and create new future possibilities by dealing with critical literacy as a tool-and-result.

Science Unit

The unit prepared for the Science Class was developed by Science teachers who belonged to TSTs from different schools and who got together to prepare a task which had as its general aim to develop knowledge of different subject areas through the reading of comic strips. They chose one from a very famous Brazilian cartoonist, Mauricio de Sousa, which dealt with cloning and made some connections with the well-known film Jurassic Park in the scientists’ attempt to clone dinosaurs from a mosquito found in amber. As for specific objectives, the teachers concentrated on working on cloning, fossils, the evolution of species and the geological eras.

Although the focus was mainly on Science, the teachers tried to make links with other subject areas as follows: Science and biology - evolution of species, fossils, cloning, reproduction, geological eras, biotechnologies and ethics; Geography - vegetation, animals, climate, geological eras, formation of rocks and fossils; History - pre-history, early beginnings of humanity, technology and ethics; Portuguese - narrative text, punctuation, onomatopoeia (insect sounds), direct speech (1st person - "Professor Bagulho! Look what I found!") and chronological order. The tasks were organized to use the genre – comic strip – as tool-and-result in the teaching of Science.

In the task was entitled The wonders of Knowledge; teachers carried out a discussion about having been bitten by a mosquito as a starting point to establish connections between daily and scientific concepts (Vygotsky, 1934):

You certainly have already observed a great variety of insects. Try to remember: Have you ever been bitten by a mosquito?

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9 The group was composed by Tânia Cristina, Denny, Ernesto, Ana Maria, Rosalina.
Besides, the teachers aimed at creating a collaborative and interactive environment by asking students to talk to their classmates about the problems of mosquito bites. This type of interaction creates an opportunity for the development of critical collaboration in the construction of meaning while creating conflict which will creatively expand their knowledge (Vygotsky, 1930) of their daily reality: *How many classmates have already been bitten by mosquitoes? How many are allergic to mosquito bites? Do these bites cause any type of disease? Which ones?*

Not only did teachers provide opportunities for interaction with regards the content of the comic strip, which was an important strategy to introduce the students into the world of science, but they also discussed the genre of the text itself as in the following questions prepared: *What is the aim of comic strips?* ( ) fun ( ) investigation ( ) information ( ) entertainment ( ) motivation for reading. In the questions presented, students were not only supposed to present their points of view but also to give support to them: *How can you support your answer?*. It was essential for students to see comic strips as an entertainment genre and not necessarily an information one. Comic strips may deal with fantasy, as in the text in which men and dinosaurs lived together. Readers must be alert to that, not to think of them as reliable and as a sound resource of information. By developing an understanding of the real aim of this genre and creating possibilities to critically address it, readers can consider comic strips as tools that are created and can be transformed during the development of the reading activity.

By using the plot of the comic strip, teachers provided opportunity for discussion about the context they were supposed to introduce and the question of the eras from a historical critical perspective: *What evidences show you that the beginning of the story takes place in pre-history? Did dinosaurs and men live together in the same era?* Besides, they did that also by using the linguistic and extra linguistic analysis of the text, focusing on the discourse capacities necessary for understanding this genre: *In order to answer this question, observe the written text and the images in the story.*
Furthermore, the task used quotations from the story to expand on students' understanding of the object of Science they were supposed to teach: *The scientists say: "We can remove the genetic code of dinosaurs and, by means of modern science, create hundreds of animals like these!"*. Through what scientific procedure can we “create” genetically equal beings?

In order to reflect upon the topic, teachers used the analysis of linguistic devices that help not only to understand the story, but also to see how the topic cloning can be an important source of debate: *Find in the text a line that expresses admiration. (…) Why is “Science Wonders” the title of the story? What is the meaning of the word cloning? What benefits can so-called modern science bring to mankind?* In this sense, students are called to take a position in relation to a controversial topic of life that interests not only scientists, but the whole society, and they have a chance to present their points of view.

The task emphasizes students’ possibilities for creatively using their newly acquired knowledge in a context of language production that deviates from the common question-and-answer type of task prepared to check students’ knowledge development. Through this creative use of the content studied, the pupils can engage in a more challenging activity which provides a chance for critical, creative development of the object – the content of the subject area, through the use of a very special tool – the language, in this case, the genre comic strip. In other words, the knowledge is defined in and by the process of its object production.

**History Unit**

The unit prepared for the History Class was developed by two TST\(^\text{10}\) to *raise students’ critical awareness in relation to means of communication* and to

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\(^{10}\) Group one was composed by Ana Cristina, Rosalina, Andréia, Marcos, Elizete, Maria, Selmo, Rosalva, Amarides. Group two was composed by Alceu, Reginaldo, Valentina, Vana, Irani, Márcia, Edno, Vilma, Stela, Luiz, João, Valquírea. Only the first names were used to meet the requirements of the university ethics committee.
discuss the possible existence of “absolute truths”. The selected informative magazine text, entitled “Ethics of Slavery”\textsuperscript{11}, which discussed and questioned the ethical parameters of slave owners. As for specific objectives of the unit, the ideal object envisaged by the teacher as the aim was questioning the concept of slavery in the XIX century and its reflection in the Brazilian society. The group also intended to do a historical analysis of that time and of the ethical discourse.

The History scientific concepts or concrete objects they worked on were slavery, XIX century culture in colonial Brazil. Transdiciplinary scientific concepts were: Philosophy: ethics, citizenship and freedom; Science: health, life expectancy, physical punishment; Arts: image reading and reproduction; and Geography: location of places.

The didactic procedures included textual analysis, image reading, study of the XIX century and analysis of different sources and documents of this period, which were the tools used as a means created and transformed during the development of the activity itself. We concentrate our discussion on the following tools: the textual analysis and on the study of the XIX century. The textual analysis comprised part of the steps developed by the TST with the researchers in the Creative Chain of LDA Activities, i.e., (a) the action capacity (analysis of the action situation) and (b) the discursive capacities (analysis of textual organization). The study of the XIX century incorporated a discussion of ethical codes and the design of a code of ethics for the school.

To discuss the action capacities, questions about the magazine created a chance for students to learn the importance of choosing reliable sources, always checking where the information had been gathered from. In this sense, questions were provided to make students aware of the possible positions or bias of the text under study: In which magazine was this text published? Is it a well-known magazine? Do you know this magazine? Are the pieces of

information from this text reliable? How do you know? What is the target reader of this magazine? Do you usually read it? Why? These types of questions were used as tools which valued students’ previous and daily knowledge while establishing grounds for a critical understanding of the issue.

As for the **textual organization**, the task required the understanding of the aim of the informative magazine text and presented two possible responses: a) *to depict a historical fact, that is, one aspect of slavery in Brazil* and b) *to publish a text produced by the magazine editorial committee without presenting the bibliographical sources*. Although the possibilities are not really connected to the analysis of textual organization as it should be (referring to narration, argumentation, description, exposition), it aimed at questioning the fact that the article presents those historical considerations as facts which cannot be questioned due to the lack of source information.

Besides, the text discussion included the comprehension of the following issues: *According to the text, what is the behavior of the slave owners? And who designed the Code of Ethics? And what were its aims?* We can infer from such questions that they were trying to connect the slave owners to the code as a way of validating their practices.

To discuss the **design of a code of ethics for the school**, teachers first provoked a reflection on the views of ethics as a socially constructed value. *According to the observations of the way slaves were treated, reported in the text, was there ethics in their relationship with their owners? Justify your answers.* Another question on the same issue was: *is it possible to talk about ethics as far as slavery is concerned?*

In order to enable students to “read the world” through reading the words, in a Freirian perspective, students were finally invited to rethink their school activities and procedures by creating a code of ethics for the school. By dealing with reading as a tool-and-result, students moved from a passive to an active participation and took up a position of subjects both when evaluating information presented to them and when creating their own Code of Ethics. In
this sense, critical literacy turned out to be a cross-curricular means for the accumulation and transmission of social knowledge.

4 - CONCLUSIONS

The teacher-designed tasks seem to create a possibility for the development of object integrated with tool. Both the area content and the genre are discussed with students - which turns the teaching-learning activity into a revolutionary activity. Students have a chance to learn the contents of the different school subjects through the texts they read and, at the same time, they learn to read the selected genres critically. The results achieved indicate the importance of the study of language by teachers of all subject areas in order to turn classrooms into a more critical and creative place.

So far in our research project, results suggest that the development of shared meanings throughout the creative chain of activities leads to a more critical and collaborative way of participating in society for all those involved. Reading the world from the perspective of developing language capacities to act critically in society seems to imply a more pedagogical-political attitude to all involved. Besides, it leads to a more responsive and responsible way of seeing oneself in the world.

Such approach provides an innovative perspective since it establishes a cross-curricular view of education, creating a chance to move from the divided – though unshared – knowledge reproduction school model to a shared, undivided type of production, of truly non-encapsulated knowledge (Engeström, 1991).

5 - REFERENCES


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