(Re) constructing teaching practices: discussing mediated by technology favoring search for better education.

Luiz Dourado Dias Junior¹, Benedito de Jesus Pinheiro Ferreira²

¹ Universidade Federal do Pará (UFPA), Brazil, ldourado1980@globo.com
² Universidade Federal do Pará (UFPA), Brazil, ferreira@ufpa.br

Abstract: In a globalized society, ever more, knowledge, education and technology are strategic transformative elements. One aspects of this issue is teaching practices. With technologies included in this reality, teachers should also be able to consider them in their practice. In this context, this study, based on an emancipatory conception of education, evaluates some assessment experiences realized with computing class’s teachers, focusing on discussion board support to improve teaching practices. Methodologically, the work made use of Grounded Theory to encode student’s dialogue evidences and build conceptual networks from them. The main findings of this study shows discussion boards as a support for teaching practices reconstruction and educational process improvement.

Keywords: emancipatory education, technology in education, education and society, discussion boards in evaluation, teacher evaluation.

1. Introduction: education and technology in a globalized World.

The proper management of knowledge in a globalized society is indispensable to building a world technically and humanly betters. It is imperative that education has a formal (or technical dimension), in which it intends to insert labor-qualified for a labor market, which is extremely competitive [1]. However, the marketplace is only one dimension in society, thus education has to have also a political dimension, a dimension that group together human being, autonomy and citizen participation promotion [1].

Amid this context, education has at least one more challenge: to keep human beings worthy of their time [2]. In this sense, there is no way to think education without the participation of the technology, although the criterion for acceptance and use can’t be the chronological one, it has also to consider a reflexive, profound and systematic evaluation about its use [2]. Consequently, the
educational community needs to develop, carefully, strategies to include technology in educational teaching practices, in a way that it uses pedagogical backgrounds.

One of the scopes of application of educational technology is the support for reflection on teaching practice. This reflection, continuously and systematically provided is essential to promote the diagnosis, evaluation and teaching practices improvement. The teaching practice when spontaneously thought is naïve, but with continuously application of critical curiosity, it becomes epistemological and improves itself [2].

For the transformation of these practices and the improvement of the educational process, it is necessary to place the individuals as subjects of the process and in communion through dialogue [3]. From this dialogue, people can question the reality that involves them, diagnose it and develop alternative solutions to overcome existing difficulties.

Thus, in order to investigate how teachers can use technology to improve their own practices, in the midst of a discussion mediated by the dialogue, this study was proposed. To achieve this goal, assessment experiences conducted with discussion board mediation involving teachers and students of Bachelor in Computer Science (CBCC) and also the Master Course in Computer Science of the Federal University of Pará (UFPA) are discussed.

The study is structured as follows: in section 2, we discuss the theoretical background for this study, anchored on an emancipatory conception of education and evaluation; in section 3, we discuss the experiences of evaluation performed, including methodological issues and, finally, in the last section we end making some final remarks.

2. Background: emancipatory educational conception.

The educational action serves the development and promotion of some particular type of human being [4]. An emancipatory educational conception intends to promote a human being that is free, autonomous and independent, but this freedom is also situated and limited by the existence of other human being (ibid).

Freedom is a denied vocation that is also affirmed in its own negation [3]. It is denied, as there are injustices, exploitation, oppression and violence of oppressors. It is affirmed in the desire for freedom, justice, fight for the oppressed, seeking the recovery of humanity (ibid). For all this, there is an education conception that intends the promotion of freedom and, therefore, emancipatory.

Thus, an emancipatory conception of education seeks to empower human beings to know the circumstances surrounding that, allowing them to intervene and transform them to extend freedom and cooperation among men [4]. Critical questioning of reality, in communion in dialogue, is as an essential condition for concrete implementation of intervention and reality transformation [3].
Consequently, an emancipatory education requires differentiated practices from educators and students to be achieved. In this sense, the subsection 2.1 discusses these positions related to emancipatory evaluation, and also the connection of these with the use of technology.

2.1 Teacher and students in an emancipatory educational conception

In traditional educational conception, the relationship between teacher and student, in all levels of school, are marked by strong narrative characteristics [3]. In this type of education, the teacher has the knowledge ready to be transferred to students [3]. On the other side of the case, the student is a “tabula rasa” to be filled by such knowledge (ibid).

An emancipatory conception advocates believe that teaching is not just transferring knowledge, but to create opportunities for building it [2]. Thus, instead of narration, education requires dialogue to build the knowledge; this not only helps students training, but also teacher improvement (ibid).

Thus, teacher and student become active subjects in educational process, which requires the teacher to enable the apprentice to learn the reality and also recreate it to learn [2]. In the process of seizing and recreation, it is necessary to encourage the student creativity, autonomy and criticality mainly because through her, naive knowledge becomes critical (ibid).

One of the elements on which creativity, autonomy and criticality of teachers and students should be focused is the educational process, and within it the teacher performance. In this context, the emancipatory assessment assumes a diagnosis character of current situation, to encourage overcoming actions, if necessary [2]. Undoubtedly, this process enhances the teacher cycle of action-reflection, indispensable for the improvement of teaching practices; by continuously encourage a review of these practices [2].

However, the diagnosis is only the first step in a process that, without making decisions and actions for improvement, becomes not authentic [5]. In this process, as well as in the reflection one, it is essential to participate in dialogue and negotiation for the reconstruction of the meanings of the evaluation [6]. However, the establishment of this dialogue is not trivial, especially because there is a culture in which teacher always evaluates and the student is evaluated. When the teacher becomes a target of this dialogue and evaluation, and the student won the "power" to participate and evaluate, in many cases, both get constrained by the process [7].

Several technologies have been used to promote, with some purpose, the dialogue. Among these technologies, online discussion boards have been used, in particular, for providing according to [8] and [9]: embarrassment minimizing; time
differences overcoming, generation of detailed and more reflective answers, mainly due to asynchronous characteristics of online discussion boards.

Experiences realized by [10] and [11] has shown potential use for online discussion boards in teacher evaluation, but mainly focused on improvement of specific disciplines of computer science. Thus, the next section focuses on describing and assessing the contribution of some experiments, which aim to capture more abstract features that can help the teacher in improving practices, in other educational areas (not only computing), with mediation and support of technology.

3. Assessment Experiences: reflections mediated by technology

In this section, we discuss the methodological approach that guided the development of this study, which is made in section 3.1 and the main results to express the potential of improving educational process, facilitated by technological mediation, under section 3.2.

3.1 Methodological approach

The scenarios of teaching evaluation experiences were the courses of Computer Science at bachelor and *stricto sensu* levels (Masters), at Federal University of Pará (UFPA). The evaluations were conducted in the first half of 2008 year, on the following disciplines: a) graduation: Theory of Computing, Software Engineering Laboratory and Special Topics on Software Engineering b) Masters: Information Technology in Globalization and Scientific Articles Writing.

The experience of evaluation was proposed to hold a debate in the last weeks of the studied disciplines, mediated by an online discussion board system in which the following discussion topics should be created: discipline focus, conduction, content and general comments. This debate should be conducted between the professor and his students, with or without the participation of a mediator. The teacher should encourage student’s participation, inviting them in the classroom and also sending instigating messages in discussion boards. There was a suggestion of at least one contribution by topic, by student. The discussion boards of [12], [13] and [14] were used, but, there were not any limitation that restricts these tools to be used in similar experiences.

At the end of the period of implementation of the discussion boards, dialogues were coded and analyzed with the assistance of Grounded Theory qualitative research methodology. This approach aims to construct a theory based on data collected [6]. For this to be achieved, the following steps (not necessarily sequential) are carried out: a) open coding: assignment of codes to segments of texts, b) axial coding: the definition of properties and relationships between
(Re) constructing teaching practices: discussing mediated by technology favoring search for better education.

categories, c) selective coding: selection of the central category of the study. Section 3.2 presents the results of the methodology application over the assessment experiences made in Computer Science at UFPA.

### 3.2 Discussion

The coding processes described in section 3.1 resulted in the following network views related to teaching practices: a) **methodology**: containing concepts and categories related to the methodological aspects of teaching, considered by students as favorable to discipline conduction (Figure 1); b) **desirable characteristics**: some general information related to teaching and institutional development (Figure 2).

![Figure 1. Network view related to methodological aspects of teaching – according to student’s point of view.](image)

In Figure 1 there are several important points for reflection on teaching practice. One of these, here highlighted is the need, in teaching activities, to present students to everyday situations that they will be involved with, in their future profession (“everyday situations of profession” category). Allied to this is emphasized attention to the actuality of the content, which can be closely linked to the lack of professional everyday situations presenting along educational process. Certainly, teasing this kind of debate along teaching, especially inside the development of a course, favors the intervention and transformation of the process
by teachers and students, as long as they act as free and autonomous being, according to [3] and [4].

Another striking aspect is the valorization of the student's prior knowledge ("joint education/ prior knowledge of the student" category). Although there was no empirical evidence to affirm, a bridge to achieve this is precisely the dialogue [5]. From the moment that teachers assumes an emancipatory practice, not considering themselves as absolute knowledge owner and also not seeing students as tabula rasa, there will be space for dialogue, because both of them (students and teachers) will be opened to share something. Since the establishment of this dialogue is an arduous task, especially knowing that still exists a culture that poses evaluation as an instrument of fear and teacher power to control students, evaluation mediation by discussion boards seems to be a viable alternative to help emerge relevant considerations and to stimulate the culture of dialogue [1], [5].

Figure 1 also shows other important aspects: working in groups and students participation. First, the issue of working in groups, as expressed in the speech of students, shows that they perceive this experience as valuable, especially as it is a reality in the marketplace. In a way, this reaffirms the need for the teacher to maintain strong link between educational activities and the market place so as to cover the extent of formal education. The issue of student participation had a close relationship with their motivation, according to Figure 1, which shows teachers the importance of continuing to promote them.

Certainly, these and other concepts that may emerge in the depth of thought that the technological mediation helps to accomplish, should not be understood with the "marketplace educational paradigm" connotation - the students are the educational process costumers and the educational institutions needs to serve them exactly as they wish. Without doubt, the opinion of students brings valuable elements of reflection, but it is essential for the teacher to apply critical census, reflect and take further decisions in conjunction with appropriate pedagogical reasons.
Figure 2 shows a list of characteristics considered desirable in teaching practices, according to student’s point of view. Among those highlighted in the context of this study, criticality stimulation, the organization of the curriculum and encouraging practical activities in learning are some that must be highlighted. The issue of criticality, according to [2], is a key aspect to the educational activity, because it allows reflective integration and participation of the individual in society (whether in employment or other aspects of it).

Particularly, there is a category related to "stimulate the criticality" that deserves mention: technical disciplines not usually involve reflection. Certainly, this type of disclosure is very important. Regardless of the application area, the appropriated linking between techniques and theories during the learning activities is very necessary, but without the criticism to evaluate these theories and techniques in a broader vision, education fails to address its inherent political aspect [1].

Looking up, together, Figure 1 and 2, we find an existing link between "stimulate the criticality", "student’s participation" and "student’s motivation". This junction signs that the active student involvement in education should be quite favorable and instigative to the educational process. Thus, besides the pedagogical background to promote political aspects of education, there is possibility that the criticality stimulation can show itself as an ally in improving the quality of educational processes in the classroom.

Another aspect that draws attention, which is expressed by the Masters Course students, is the existence of the category: critical disciplines should not be taught only in post-graduation. This category evidences awareness, on the part of
students, that criticism is an essential element to the teaching-learning process and also to orient participation of individuals in society. In this way it is, the individual should have this training early, not only in post-graduation.

Regarding the “organization of the curriculum” and “encouraging the practice” categories, they can be linked. Certainly, involving student in curricular discussion is something crucial to accomplish political aspects of education. In addition to providing a joint approach and vision of the world of students, it promotes a process of continuous improvement of teaching practices and the educational process as a whole.

4. Conclusions

The attainment of the results discussed in section 3 does not show the technology as a vital element for achieving them. However, it is perceived that it could be quite favorable to the achievement of a critical dialogue between teachers and students, providing relevant information to improving the educational process.

Probably, depending on the relationship between the teacher and their classes, the difficulty of establishing dialogue may be less. Throughout the implementation of the evaluation experiments here described, some traces of this possibility could be perceived when both were in some classes: greater participation and greater expression of affection between teachers and students.

The possible relationship between affection and encouragement of critical dialogue has at least two relevant possibilities: 1) when the difficulty of relationship is great, the discussion boards may be mediators that minimize the embarrassment, stimulating participation, and possibly encouraging a dialogical culture; 2) when the difficulty of relationship is small, this critical dialogue may waive the use of discussion boards (in the case of not distant education), or use them to benefit the educational process with the depth of reflection it helps to promote.

This study could show a not traditional use of technology to promote better education. Certainly, the fact that this study only considers discussion boards is a restriction that reduces the generality of this sentence. It’s also important to remark, that the complexity brought by a paradigm change, can not only be reduced to a technological issue, but primarily and essentially cultural. Because it is based on emancipatory paradigm, this works ends believing that the humanistic focus to technological use favors the links between education, technology and a better world.
(Re) constructing teaching practices: discussing mediated by technology favoring search for better education.

References