

# Mediator-learner Dyad

## Cooperative Relationships

Gilda Helena Bernardino de Campos<sup>1,2</sup> and Gianna Oliveira Bogossian Roque<sup>2</sup>

<sup>1</sup>Dept. Education and Central Coordination for Distance learning, Pontifícia Universidade Católica do Rio de Janeiro, Rio de Janeiro, 22453900, Brazil

<sup>2</sup>Central Coordination for Distance learning, Pontifícia Universidade Católica do Rio de Janeiro, Rio de Janeiro, 22453900, Brazil

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Abstract: This study presents results from a quali-quantitative research looking for evidence on the pedagogical mediation influence on the academic performance of distance learning students. For the systematization of the responses to the research question, a content analysis was performed using the Alceste method. An explanation for the evidence of the mediation relevance to the student professional performance, following from the dyad for cooperation concept, based on social psychology theoretical underpinnings, founded on the philosophy of the Hegelian logic. These concepts paved the ground on which the analysis was deployed.

## 1 INTRODUCTION

The accelerated increase in the number of undergraduate and post-graduate courses delivered through the distance education model in Brazil in recent years makes it necessary to rethink the indicators used in the quality assessment of distance learning courses.

This article presents the results of a research on the actions of pedagogical mediators. We assumed that the relationship established between mediator and student forms a dyad that establishes a situation of cooperation throughout the course, as defined by Morton Deutsch (1973). This means that there is only one goal for these participants connected in such a way that the final goal can only be reached if, and only if, both are able to reach their goals. Deutsch coined the term *promotive interdependence* which has been used to characterize the relationships and connections in which there is a positive correlation between achievement and success of both participants (p. 20). From a philosophical viewpoint, we believe that this positive correlation, as well as its counterpart, the negative correlation of competition, taken as opposites, can be expressed in the contradiction of Hegelian dialectic (Hegel, 1812).

## 2 THE FIELD OF RESEARCH

The central objective of the present research was to investigate the way students signified what is quality in distance learning courses. To this end, we developed a questionnaire consisting of 25 objective questions and four open-ended questions – made available online and protecting the identity of respondents. This instrument was sent to all 3,828 students finishing the specialisation course *Tecnologias em Educação* [Technologies in Education], resulting in 2,117 answers.

The specialisation course *Tecnologias em Educação* targeted teachers and managers selected by the State Departments of Education (SEE) and Municipal Departments of Education (SME) covering the entire Brazilian territory in different regions.

The structure of monitoring and support of the course participants involved teachers-authors, pedagogical mediators, educators on different nuclei of educational technology in the country, coordinators, technical support, secretariat, among others. In order to academically monitor course participants, distributed in 208 classes, a team of 110 pedagogical mediators was formed, and each was responsible for one or two classes of a maximum of 30 students. It is worth noting that the course was distance-learning, and the pedagogical mediator was

responsible for the enhancement of the learning space, individualised attention to students, guidance with regard to the content covered in the disciplines by establishing a dialogue between students and the study materials and learning assessment.

The objective questions of the questionnaire sought evidence on the following topics: teaching material; study guidance; student support; technical support; study environment, and self-assessment. For writing this article we selected part of the study which deals with one of the open-ended questions on pedagogical mediation: *How did the Pedagogical Mediation carried out throughout the course contribute to your academic performance?* The procedure we chose for data analysis was discourse analysis.

### 3 PROCEDURES FOR DATA ANALYSIS

In this research, we chose to work with content analysis through the ALCESTE software: *Analyse des Lexèmes Cooccurrents dans un Ensemble de Segments de Texte* (Reinert, 2007, p. 35). Either in the analysis of co-occurring lexemes in a set of text segments or in simple statements in a text, “the method's principle is simple,” writes Reinert (2007): “The corpus to be analysed is cut into a series of text segments and the distribution of full words in these segments is observed: hence the name of the method” (p. 35). The “full word,” assumed as something meaningful, is different from the “tool word” (“mot outil”) like, for example, the conjunction or pronoun that acts as an aid supporting language in discourse.

Its functionality consists in successive analyses that seek to distribute the co-occurrence of the full word in different text segments or in its simple statements, taken two by two. Within the theoretical framework which conceived and operationalised the Alceste method, we find the fundamental assumptions of psychoanalytic theory on the concepts of free association and repetition, from which the method has been gradually implemented.

The conception of the ALCESTE method leads Reinert to Lacan and demarcates precisely what one should expect from key-algorithms that intend to seek significant structures, that is, configurations signalling meaning:

Studying the meaning of an utterance, of a discourse, presupposes that one takes into account a specificity of meaning. It is trinitarian: meaning as sensation, meaning as direction, and meaning as significance.

The meaning of an utterance develops dynamically due to a reading like a braid with three strands [...] the analysis of certain corpus allows us to undo the knots of the braid (REINERT, 2000, p. 1).

Reinert did this in order to bring these concepts to the data table to be prioritised, without any kind of a priori criteria, through correspondence analysis.

In practical terms, the Alceste software seeks a pragmatic approach to the text, focused on lexical co-occurrence, co-presence of vocabulary contrasted to two contextual units of the corpus. According to Lima (2008), it is not about comparing the statistical distribution of ‘words’ in different data corpora, it consists in studying the formal structure of their co-occurrences in the ‘statements’ of a given corpus. What the Alceste programme examines in the text are not the superficial divisions resulting from the meanings of individual words, but, as Lima (2008, p. 89) points out, “it examines the resonances of meanings established due to the co-occurrences of some terms, and which appear clumped together in certain parts of the text (discourse) at certain points.” Later, we may observe the analysis stages or procedures of the software.

To enable the organisation of the analysis procedures we first needed to delimit the categorisation of the text to be analysed, the occurrence of which is registered according to the categories raised and the contextual units – the broadest part of the content to be analysed. We used as variables some characteristics we regarded as significant to the analysis of the questions, in this case: the number of the individual, their gender, the class to which they belong, and their school system.

### 4 DESCRIPTION OF QUALITATIVE DATA

We identified 2,079 units of initial context (UIC), that originated, from the analytical approach of the Alceste software, 2,049 units of elementary context (UEC). Of those, 85% were classified, resulting in the hierarchisation of four classes.

From the data matrices, the program performs a descending hierarchical classification (DHC), which produces a hierarchical tree, the dendrogram of Figure 1, which reveals the identification of the classes through the DHC, where we can identify two groups. The first, formed by Class 3, and the second formed by classes 2, 4, and 1. Camargo (2005) explains that the descending hierarchical classification only ends when the classes become stable. In the specific context of the linguistic

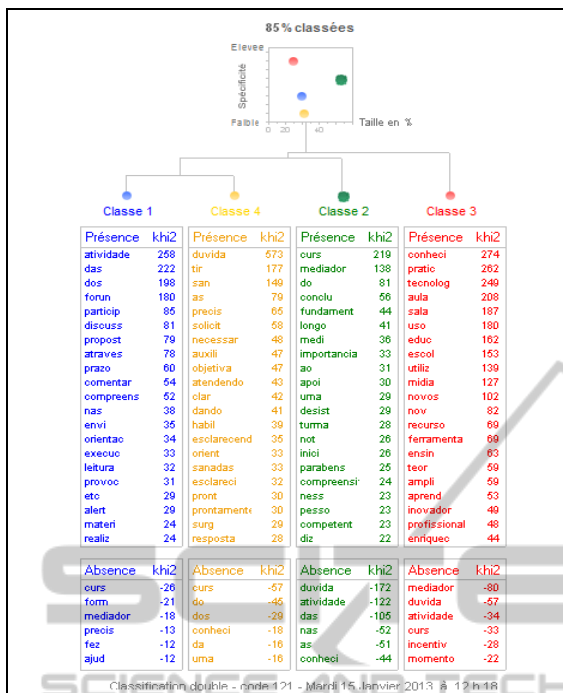


Figure 1: Descending Hierarchical Dendrogram.

intersection with psychoanalytic theory (Reinert, 2001) there is an observation we consider important in the assessment of the stabilisation of the process of hierarchical descent created by Reinert for the Alceste methodology, technically enabled by Benzécri's (1992) correspondence analysis.

We note that Class 3 is the class with the highest number of occurrences, therefore, it is not the biggest in size. Class 2, in spite of having the highest number of occurrences, is the second in hierarchy and contrasts with Class 3. This contrast contains the central point of this article, which consists in the dyad between mediator and student.

The goal of the descending hierarchical classification is to make explicit “among all possible partitions in two classes the one which can be considered the most significant statistically” (Marchand, 2007, p. 63). It is an iterative procedure – the first class analysed comprises all context units retained, and the procedure seeks the partition in two classes which makes the chi-squared of the table margins reach their maximum. The most “important” and significant class comes from there. The same procedure is carried out with what remained outside this class and which will again produce two classes, one of which will be retained, the rest reprocessed in new iterations, until the procedure is exhausted and stops.

Within this technical framework, let us comment

on some of the main results. Class 2 is subdivided into two classes, forming a perfect hierarchy. It is a “bipolar hierarchy,” to use the terminology used by Kalampalikis (2003) for this descending sequence configuration. This hierarchy points towards the existence of the contradiction, in the dialectical sense proposed by Hegel, between two opposed individuals who have a cooperative position but who belong to a different locus from one another and pursue the same goal. In this point Deutsch's (1973) theory of cooperation and competition comes in, based on the contradiction of opposites in a situation of interdependence, operationalised in the same two-by-two matrix we have been using. In the cooperative situation, the correlation is positive in the intertwining of the goals achieved by participants. In the competitive situation, in turn, the correlation is negative, because the intertwining of goals achieved is based on contradiction. The application of these concepts of cooperation/competition in the educational context, within the framework of the theory of social interdependence, is exemplified by the great impact of the work, in *Educational Researcher*, by Johnson (2012).

The divisions between classes represent the relation of proximity of pre-existing meanings common to them. Considering the reduced words and/or forms, it is possible to name the formation of classes in the following way:

- Class 3 – pedagogical training of mediator;
- Class 4 – Mediator as the main motivator of the student;
- Class 1 – Pedagogical strategies of mediation;
- Class 2 – Mediator as a “knowledgebase.”

#### 4.1 Analysis of Class 3 – Pedagogic Training and Mediation

Class 3 deals with essential aspects to the training of the pedagogical mediator from the viewpoint of students in the professional training of the participating teachers. In this way, we managed to identify two distinct axes in one single class. The first axis includes the words slogans learn+, resource+, teach+, educ+, media+, use+, class+, and room+ [*aprendi+*, *recurso+*, *ensin+*, *educ+*, *midia+*, *uso+*, *aula+*, and *sala+*] as those related to the pedagogical mediator's theoretical and practical knowledge. The second axis, in turn, includes the radicals professional+, enrich+, knowledg+, ampli+, reflect+, practic+, and innovat+ [*profissional+*, *enriquec+*, *conheci+*, *ampli+*, *reflet+*, *pratic+*, and *inovador+*], that are revealing of the result or

influence that pedagogical mediation had in the professional performance of the student.

In this class, two aspects are highlighted: Educational background of pedagogical mediator and Influences of mediation on the professional practice/training of the student. In the students's conception, the pedagogical mediator, in their training, must have knowledge on the learning processes, didactic in distance education, and theoretical and practical knowledge on the subject they teach. The knowledge of the pedagogical mediator in relation to learning processes are intimately connected to the pedagogical and communicational conception on which the course is based. Within the skills that involve learning processes, the students raised questions about the commitment the mediator should have to student learning.

Pedagogical mediation is the basis of the process of teaching and learning and in a distance learning course, and essential for the permanence of the student and construction of knowledge (Ind\_344 \*Gen\_F \*Turma\_BA05)

With respect to didactic in distance education, the students presented two aspects in their statements: the first, that the mediator needs to know distance education how to use the interfaces present in the virtual environment, and teach students how to work with the environment's interface, and enable student-mediator interaction in the virtual environment. Another aspect to be highlighted is the fact that many students had their first contact with distance education and did not feel confident in the navigation. It was up to the pedagogical mediator to identify these students and offer them support.

(...) it was very important, because I managed to learn how to interact and handle the several tools and new technological advances, besides entering the era of digital inclusion, because I was ignorant on the subject (\*Ind\_1092 \*Gen\_M \*Turma\_PB01).

Here we emphasize the importance of a mediator who is a researcher, in the sense of always seeking new media and new uses to share with students, as well as encouraging them to develop an autonomous way of learning, carrying out their own researches according to their school routine.

The influence of mediation on the practical and professional education portrayed by the students was understood as reflection and performance in classroom. The recognition of reflection as something meaningful in the professional performance of participants can be perceived in the following statements:

Pedagogical mediation was precise, providing content that brought reflection on the pedagogical performance of each student in their working environment, reevaluating practice (\*Ind\_1590 \*Gen\_F \*Turma\_RO03).

From the student's statements we can observe that the influence of reflection was not attributed only to the pedagogical mediator, but also as a result of the whole course, being seen as a skill that was developed by means of learning, collaboration, and knowledge built during the specialization.

It is through the act of reflection that the teacher feels the need to change their pedagogical practice or, as was brought up by the students, their performance in the classroom. It is not enough for the teacher to only know how to work with technologies, manipulate them, or include them in the school routine and in the class plan if this process is not accompanied by reflection. Their performance in the classroom will not significantly change.

Pedagogical mediation provided some didactic innovations that facilitated my teaching practice. (\*Ind\_1957 \*Gen\_F \*Turma\_SP04)

#### 4.2 Analysis of Class 2 – Motivation Strategies

Class 2 is hierarchically superior to Classes 1 and 4 and contains 44% of the analysed UECs. We identified in this class UECs related to the mediator as someone who motivates the student during the course and about the assessment strategies used by the mediator. We also found statements from students who attributed to the mediator their having been able to complete the course.

We note a division between two larger groups, with the first one also divided (Classes 1 and 4). The meanings present in the first group (Class 2) are: the importance of the mediator in the conclusion of the course, based on the radicals mediator+, essent+, importance+ [*mediador+*, *fundament+*, *importancia+*]; and the characteristics or attributions of the mediator in order for them to motivate the student, which we identified through the radicals competent+, sympathetic+, drop+, congratulations+ [*competent+*, *compreensiva+*, *desist+*, *parabéns+*]; and support from the mediator for the student to conclude the specialisation, present in the words slogans drop+, support+ conclu+ initi+ [*desist+*, *apoi+* *conclu+* *inici+*]. In the second group (Classes 1 and 4), in turn, it became clear the meaning of the importance of monitoring the performance of the student by the mediator throughout the course and the strategies used in this, considered through the

analysis of the words slogans *curs+*, *get+*, *not+* and *long+* [*curs+*, *cheg+*, *not+* e *longo+*] in their elementary context units. It is clear that the elements of student motivation are their affective relationship with the mediator, assessment, and conclusion of the course.

(...) my mediator was great. She was always attentive to everything and very supportive, even emotionally when difficulties arose. (\*Ind\_479 \*Gen\_F \*Turma\_DF02).

Monitoring and assessment of distance learning courses is a great challenge, especially when what is at stake is quality of education. The course adopted a process of training evaluation, therefore, it was necessary to set up a monitoring structure, in which the students were evaluated by the pedagogical mediator throughout their process learning, carried out a self-evaluation of their performance in the course and, finally, participated in institutional evaluations. According to Roque (2011), the evaluation and monitoring of distance-education students requires special considerations, since distance learning, when guided by pedagogical assumptions, aims at developing the critical autonomy of the students. Besides, distance education does not include the physical presence of the teacher, which makes necessary the development of work methods that promote student trust, enabling the elaboration of their own judgments and their ability to analyse them.

It is clear, from the statements of the students, that there is a connection between mediation and good performance in the course, even as a way to enable its conclusion. A relationship of motivation and affectivity through the encouragements and support in the realisation of activities also became evident. The item 'course conclusion' highlighted the importance of the pedagogical mediator in the completion of the course of each student. In their oral statements, the participants managed to show how the mediator motivated them in order for them to achieve their goals and reach the end of the specialisation.

The pedagogical mediation carried out during the course contributed to my academic performance in all possible ways. It was extremely important for my following the course, with encouragement and support. (\*Ind\_780 \*Gen\_F \*Turma\_MG01).

The student's depictions revealed the importance of the cooperation dyad involving affectivity and monitoring.

The subdivisions of Class 2 were named Pedagogical Strategies (Class 1) and Knowledgebase Mediator (Class 4). They do not represent in

themselves the explicit contradiction between their hierarchically superior class. The Class 2 set, in contradiction with Class 3, explains the importance of the mediator-learner dyad.

## 5 CONCLUSIONS

The testimonials of the students, who are teachers in the public school system, reveal the unfoldings of reflection in their professional practice. Pedagogical mediation, by encouraging the students to reflect, also promotes the transformation of their classroom performance, their education, and professional development. Pedagogical mediation was perceived by the students in the support they received during the realisation of activities and interaction in the proposed forums. Interestingly, the answers showed no reference to necessary physical presence of the mediator. Throughout the development of the course, pedagogical mediation appears as a permanent and individualised activity, whose objective is monitoring the students and offering each of them the help necessary in the learning process. Despite the fact that the central issue of this work has focused on evidences of the contribution of pedagogical mediation in the academic performance of students, looking into themselves, the actions were viewed as important to the improvement of professional performance – the main goal of the course – besides being highlighted as the reason for students to conclude the course.

Resuming the pragmatist perspective pointed out by Reinert, the object of analysis cannot be separated from its context. We emphasize, then, that the situation of the pedagogical mediator and the student is not static. The relationship of cooperation between them is dynamic, since it is alive and maintains direct and individual communication with each student. The three definitions of the word 'meaning,' namely, sensation or intuition, direction or motion, and significance, were demonstrated in this paper based on the mediator-learner dyad in the context of cooperation throughout the course, towards professional qualification and, finally, in the meaning of change that can be verified in the comments from the students.

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