

Devising didactic materials for distance education (DE): between questions and considerations a methodological proposal focused on learning

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Camile Gonçalves Hesketh Cardoso – Positivo University –
ccardoso@up.com.br

Juliana Boff Aramayo Cruz – Positivo University – julianaboff@up.com.br

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SUMMARY

This paper analyzes the methodology used in devising didactic material for the university course Technology in Management Processes, which is offered as distance education in a private university. It is believed that analysis of methodology is relevant, since it explains and defines the didactic path to be followed by the student; moreover it implicitly contains the notion of subject to be formed. This research started in May 2011 and is still in progress. The first completed phase consisted in the analysis of the methodology used for devising the materials of twelve subjects which will be taught in the first year of the aforementioned course. The analyzed methodology stems from the notion of a flexible education in its organization, based on conversation and interaction between teacher and student, having significant learning as guideline. From it derive the following principles which permeate the different sections created for the material: situated learning, learning by questioning, reflexivity of thought, information organized in different levels, construction and reconstruction of knowledge and independent learning. After analyzing the principles that guided the methodology, one perceives that said principles are used in the didactic material, coherently keeping up with the proposal of forging inquisitive, reflective and independent students.

Key words: learning; methodology; didactic material; instructional design.

1. Introduction

Social, technological and epistemological changes demand the need for an education open to uncertainties, differences, and emergencies. The role of education is changing profoundly, regarding the substitution of the unidirectional passing of information for the interactive exchange between the learning subjects, or else related to the change of focus from instructional teaching to education based in the construction/reconstruction of knowledge.

In Distance Education, despite the potential of the available interactive technology, one notes that the instructional design of much of the didactic material still focuses on unidirectional communication, instructional teaching, and readymade questions and answers between students and teachers.

On this teaching – learning context mediated by Technologies, it is necessary to rethink didactic materials produced for DE. Instead of reproducing the traditional teaching model based on passing on disconnected information, the formation of active subjects in their own construction of knowledge.

Freire (2008) ^[1] emphasizes that the apprentice subject, teacher or student authentically acts on reality when it is dialogic, that is, when there is dialogue. It is in this communication with the other that knowledge is apprehended, discovered.

In May 2011, the university¹, aware of the new educational demands, establishes a new methodological proposal in Instructional Design for didactic material in its distance education course of Technology in Management Processes. It stems from the notion of a flexible education in its organization, based on dialogue and interaction between teacher and student, having significant learning as guideline.

The course in question is being certified by the Department of Education (MEC). Structured in order to promote a wide professional formation of the professional in management, it gives students theoretical knowledge applied to practical and day-to-day situations in companies, aiming to forge critical and independent professionals.

In the production of didactic material for the 12 subjects in the first year of said course, the characteristics of the target group, the limits and potentials of

¹ For ethical reasons, in this research, the name of the referred institution will be kept secret.

the languages of each of the media, as well as the integration and complement among them were considered.

Both the printed and digital materials of each discipline are organized in study units and were conceived and structured from the methodological proposal described below.

2. Methodology used for the didactic material

The methodological proposal of the course of Technology in Management Processes originates from Ausubel's (1980) ^[2] cognitive notion. For the author, significant learning is the process through which a new piece of information received by the subject interacts with a specific knowledge structure guided by relevant concepts, the subsuming concepts – or incorporating, integrating, inserting, anchoring concepts – determining of previous knowledge that anchors new learning.

In this way, learning is understood as the cognitive interaction between this new knowledge (potentially significant) and some relevant previous knowledge which exists in the apprentice's cognitive structure.

With **significant learning** as guideline, some principles which bring a complementary approach to Ausubel's (1980) ^[2] ideas and which base the pedagogic proposal of Distance Education adopted for the course in question are highlighted.

2.1 Situated learning principle

Brown, Collins e Duguid (1989) ^[3], from Lave e Wenger's (1991) ^[4] ideas about situated learning, defend that human cognition and learning are intimately related to a context. For these authors, knowledge is situated as a product of activity, of context and culture in which it is developed and used. Since the concepts formulated by people are developed according to their activities, they become tools used for dealing with the many day-to-day situations. Such concepts change as people evolve socially, thus, learning becomes a continuous process and changes according to each experienced situation.

This principle appears in the didactic material right in the beginning of each unit. In the printed as well as in the digital book, the student finds a description of a guiding scene capable of contributing with the understanding of

the context of the unit's central theme. The teacher-author presents the main theme which will be worked on the unit from a fragment of a situation, real or fictional, or from an applied principle. In the digital version, the student will find a multimedia complementary resource.

2.2 Principle of learning by questioning

In human history, many advances happened due to curiosity, moved by the search for answers to some perturbing questions. This attitude triggered the development of the scientific spirit and different research. Therefore, giving students the opportunity of developing the ability of asking questions, is necessary and essential nowadays.

According to Postman and Weingartner (1969, p. 23) ^[5]:

Knowledge is not in books waiting for someone to come and learn it; knowledge is produced as answers to questions; all new knowledge results from new questions, many times new questions about old questions. [...] Once one learns to formulate questions – relevant, appropriate and substantive – He learns to learn and nobody else can stop him from learning whatever He wants.

Moreira (2005, p. 7) ^[6] also reminds us:

When the student formulates a relevant question, appropriate and substantive, he uses his previous knowledge in a non-arbitrary and non-literal way, and this is evidence of significant learning. When he learns to systematically formulate these kinds of questions, there is evidence of significant critical learning.

Therefore, from what the aforementioned authors state, it is essential that, in its methodological proposal, distance education incorporate spaces that make the systematic and organized questioning possible, in order to develop the students' inquiring spirit, which is a fundamental ability for society nowadays.

In the didactic material, this principle is used right after the description of the guiding scene, when a guiding question is posed, aiming to incentive the student to ponder about the theme of the unit, recovering each student's previous knowledge. From this question, students come up with their personal theories in order to try to answer them before reading the text.

After having come up with personal theories to try to answer the guiding question of the unit, the student is challenged to reanalyze the guiding scene

and produce a disquieting question which expresses a new inquiry about the unit's central theme.

The idea is to incentivate the student to create a question which expresses something that he would like to investigate and/or discover and share it with the tutor and his classmates, in the fórum of the virtual learning environment. Besides helping the student to provide good answers, the tutor must generate the opportunity for good questions.

2.3 Principle of reflexivity of thought.

The formation of a reflective student is based on a pedagogic proposal that prioritizes a critical attitude and that articulates and integrates both theoretical and practical aspects.

According to Saviani (1987, p. 28) ^[7]:

The term reflection comes from the Latin verb *reflectire* which means to turn back, therefore, it is to rethink, or a thought, a second degree (...) To reflect is to retake, reconsider the available data, review, rummage in a Constant search for meanings. However, it is not just any kind of consideration, but something articulated, critical and strict.

Regarding consideration/reflection, Freire (2005, p. 90) ^[8] states that “men don't make themselves in silence, but in words, in work, in action-reflection”. The action and reflection dimensions are embedded, and the word, the exchange of ideas and the cooperative work promote a full professional and human formation.

In the didactic material, throughout the text, called “**Theoretical connections**”, students will find reflective and applied questions. Their goal is to link the theoretical content to practice. The idea of “action” comes from the fact that students, after reflecting and expressing their considerations, are compelled to put what was learned into practice, even if only hypothetically. These questions will be the base for debates (forums) in the Virtual Learning Environment used by the University.

2.4 Principle of information organized in different levels

Current reading and writing practices, new communication situations in cyber culture, changes in the language and the new ways to think and learn contemporarily impose the need to rethink the way to present content to students, in the didactic material.

Information organized in different levels is based in Ramal's (2002, p. 84) ^[9] ideas when he reminds us:

We read and write with the possibility to open "window", to link and connect with referential information which will quickly and intuitively associate us to other texts, other fragments, other ideas. We are approaching the reading and writing form closest to our mental outline: just as we think in hypertext, without limits for the imagination with each new meaning given to a word, we also Cruise the multiple ways the new text exposes to us, not on pages anymore, but in superimposed dimensions that intertwine and which we can compose and recompose each time we read it.

This principle is presented in the didactic material in relation to the organization of information. The basic content of each subject in the section "**Theoretical connections**" is organized in hypertext format, bringing some complementary information which can be explored by the students, from their interests and needs. The organization of information is many levels (from the most basic to the most complex, from the most focused to the widest), is in harmony with the *web's* non-linear potential. From some key concepts, students find extra information in enlightening, enriching and deepening windows.

In the **ENLIGHTENING** windows, the student finds explanatory information about terms and concepts able to better clarify the approached ideas.

In the **ENRICHING** windows, the student finds information related to the main theme, although, under a different perspective. These pieces of information aim to expand the main theme's reach, to widen its range without necessarily making the selected topics more complex (profound). Practically, they can be tips for *websites*, movies, and bibliographical references, followed by a short teasing text able to generate student curiosity about themes related to the topic of the unit.

In the **DEEPENING** windows, the student finds information which allows him to “dive” into the presented themes, widening the complexity and depth of his studies.

2.5 Principle of construction/reconstruction of knowledge

Assuming that knowledge is a constantly transforming process, it is necessary that the student participate in this process, building and rebuilding his knowledge.

Demo (2000, p. 11) ^[10] understands the process of reconstruction of knowledge as:

(...) the most competent orchestration of citizenship, which is the innovative and always renewed knowledge. It simultaneously offers the base of critical awareness as well as the lever of innovative intervention, as long as it is not the mere reproduction, copy, imitation. It doesn't have to be totally new knowledge, a rare thing by the way. It must, however, be rebuilt, which means it includes personal interpretation, formulation and elaboration, know how to think, learn how to learn.

The principle of the reconstruction of knowledge is also present in the didactic material. At the end of each text book unit, the student finds a section called: Ah-há – Constructive Activities. The expression “Ah-há” may mean discovery; understanding. This group of activities, as the name suggests, intends to contribute with the construction/reconstruction of the student's knowledge, from a new look at the concepts studied in the unit.

The activities that compose this item aim to incentive the systematization of the relevant concepts. The first activity consists of writing an individual summary. The second activity consists of revisiting the guiding question and writing a new answer, checking to what extent the information learned throughout the unit was able to sustain or refute his initial supposition. The third activity consists of going back to the disquieting question proposed initially in order to evaluate if the doubt exists even after having read the text of the unit and interacted in the Virtual Learning Environment.

2.6 Principle of independent learning

In current society, in which the individual takes an active role in his learning process, autonomous attitudes are valued more and more.

According to Peters (2001, p. 95) ^[11] students are autonomous:

When they take over and carry out the teacher's functions. This means: when they recognize their own study needs, select contents, come up with study strategies, find materials and didactic means, identify human resources and additional material and use them, they also organize, guide, control and evaluate their learning process.

Claxton (2000, p. 216) ^[12] complements:

In general, in the learning society, it is more and more up to the individuals to evaluate what they know and what they need to know. To be able to monitor and check our own progress, to know when we did a good job, to diagnose our own potentials and learning needs, to develop the professional judgement, to take inventory of achievements: for all these reasons, it is valuable to cultivate the disposition and the competence for self-evaluation.

This autonomy principle appears in the material in the self-evaluating activities section. They are proposed at the end of each text book unit and intend to make self-evaluation possible, based on the learning goals highlighted in the beginning of the unit. For that, students have some self-evaluating hints. These hints are comments made by the teacher-author. They don't bring readymade answers, except for objective answers.

3. Final considerations

The methodology presented here can be represented by the following info graph:

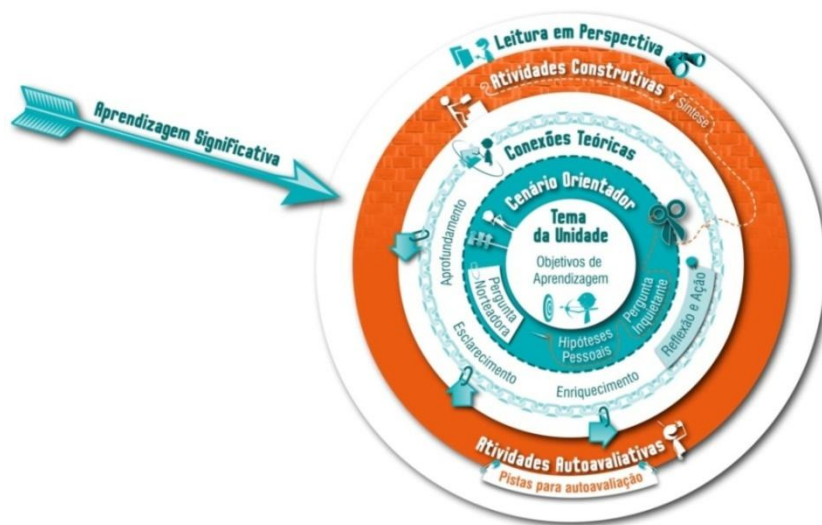


Image 1: DE methodology for the didactic material of the course Technology in Management Processes

Source: the authors (2012)

After analyzing the materials of the 12 disciplines which compose the first year of the university course Technology in Management Processes, you can see coherence between theory and practice. The principles which base the methodological proposal appear in all the analyzed didactic material, coherently keeping up with the proposal of forging inquisitive, reflective and independent students.

However, it is appropriate to stress the importance of the continuity of his research, from the students' points of view. Another aspect to be evaluated in the next phase is the effectiveness of said methodology in the learning process. Thus, it will be possible to identify methodology aspects which need to be perfected.

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