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Guidelines for the Design of Distance Education Courses

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Abstract : *The objective of this article is to present guidelines for the design of Distance Education courses that contribute to the development of the student's competences. As methodological procedure we worked with exploratory-descriptive approach and qualitative analysis. Data collection emerged from bibliographic and documentary research. The inductive method was used from a theoretical-practical orientation. As a result, fundamental dimensions to be contemplated in the design of educational resources were identified, beginning with the instructional design of the course. That is, the need for systemic vision challenges professionals and researchers in the field*

Keywords - *Distance education. Planning. Course*

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I. Introduction

The path of Distance Education (DE) in Brazil predates the expansion of information technology and digital communication, referring to a historical moment where the main tools used were correspondence, radio transmissions and television. However, this practice gained space and significance in the 21st century when it assumes public policy force. And since then the incentive to the development of educational resources that contribute to the construction of knowledge and consequent development of competence has been the subject of attention of those who promote courses in this modality. Thus, the educational resource is defined as a tool of fundamental importance for Distance Education, because in this educational modality the student is not physically present in the classroom, so the support of the teacher and, even of colleagues, is not always face to face. It is understood, according to [1] e [2], that a quality educational resource is one that has a defined form and defined visual identity, structured content with clarity, cohesion and dialogicity, reflective activities to promote the process of knowledge construction.

These details are highlighted in different researches that address the quality of distance learning courses, in this context educational resources stand out as an important tool of knowledge mediation, since for many students learning only occurs if there is also dialogue and educational resources made available. [3] corroborates that quality is not measured by the number of students, but by the seriousness and commitment of the instructional project that consequently infers in the student's involvement.

In this sense, the objective here is to present guidelines for the design of distance education courses in order to contemplate a proposal for the development of technical and pedagogical skills of the student. For this purpose, an exploratory-descriptive approach was developed with the purpose, as [4] emphasize, of seeking greater familiarity with the question under analysis in order to understand the complexity of the elements integrated in the course design of DE. A descriptive approach was followed, in which aspects of the development of an instructional project for a new distance education course were outlined, which expanded the researchers' familiarity with the study question [4]. The exploration and description of this research began by bibliographic research, directed to the theme, that according to [5], has the purpose of characterizing the object of study presenting the maximum accuracy of the related elements.

The documentary analysis was based on the technical and informational records of the authors, resulting from participation in projects in the area between 2011 and 2017, developed in public and private institutions, from the perspective of formal and informal education, in institutions located in Brazil. This data organization was done through a spreadsheet of data in the perspective of mapping contemporary good practices. For such, we worked with the concept defined by [6] as the synthetic and precise description of an expression presented. All this concatenation of data was performed with the intention of organizing a set of guidelines relevant to professionals and researchers in the area who want to design a quality course in DE.

As analysis approach we inferred qualitatively with the objective of recognizing the phenomena of the study. And in a complementary way the inductive method was defined as technique for this research of theoretical and practical nature, since it allowed the authors to propose the guidelines as a conception phenomenon of a Distance Education course. All process of induction followed the structuring proposed by [4]

organized in three stages, namely: observation of the phenomenon; discovery of the relationship between them; relationship generalization. This organization was followed fluently integrating the theoretical discussion that is presented in unit two of this study integrated to the experience of the authors in the area (perspective fostered by a walk that transcends more than a decade of context).

In this sense, we highlight the relevance and originality of the result presented here and built from the improvement, through the collection of the area, in relation to the practice of this universe. All result is discussed in four separate sections of this article. Introduction first. Second, called theoretical trail with basic constructs that support the study. Third is the empirical track that composes the organization of concomitant theory and practice in order to delineate some essential dimensions when one thinks of the planning of educational resources for a distance course.

II. Theoretical Track

Educational resources in DE assume a prominent role in the teaching-learning process, where learning is largely autonomous and individuals need to be highly motivated, independent, autonomous and proactive. As [7] points out, those who imagine that distance learning is easier than face-to-face are mistaken. In this context, when planning a course in the distance modality one should not imagine that it is necessary only to transpose the existing content in the presential modality to DE. The transposition of didactic resources involves different aspects that can be contemplated with the conception of the instructional project of the course that should include: definition of target audience, teaching and learning objective, course and discipline workload, course structure, types of media and evaluations to be developed, among other elements that need to be in line with the pedagogical project of the course in order to develop the expected competencies. [2] explains that the instructional project can be understood as a first structured document of the course proposal and for such it should contemplate questions related to learning need, teaching objectives and also a description of possible limitations. [8] define this project as a relevant element in the conception of the teaching-learning system and all its operational aspects to be acquired or elaborated.

Quality educational resources have to be well structured to facilitate student understanding, which in turn will enable meaningful learning, enabling the student to be able to build, deconstruct, and rebuild knowledge. An educational resource can only be considered of quality and relevant when it is organized and programmed [9]. [1] e [2] corroborates that the quality of the educational resource is related to its potential to allow the construction of knowledge and to have form, content, language and activities planned based on student profile, course proposal and competencies to be developed.

According to the Quality Reference for DE, a document with force of law in this scenario, in addition to the basic material for the student, it is important that an educational resource is developed to be the General Guide of the Course, able to guide the student about the characteristics of teaching and learning, as well as their rights and responsibilities during the course [10]. In this context, it should be pointed out that the planning of a course in DE committed to the development of competences must be based on the quality of the educational resources to be used in the course. This discussion imposes the need to consider the provision of planned didactic elements in order to enhance interaction between the different actors involved in the project in order to ensure the rights of students enrolled [10] e [11]. In order to meet these guidelines, it is evident that educational resources must adhere to the objective of teaching and learning and pedagogical conception of the course, which requires the interaction of different actors and the different phases of their design and development to have the educational resources as a unit of knowledge without limiting itself to simply being a means of transmitting information.

Therefore, it is implied that the structure of DE, in the most varied institutions, must have at least viable conditions that allow the provision of quality training. This structure is related not to the number of students, but to the planning of teaching and the results of learning. This way, the effective development of competences requires a systemic planning from DE, taking into account the institutional structure, the media system and interaction as well as the political and administrative system that guide the institution [12].

[3] points out that there are two models for planning a DE course. The teacher must stand out in the traditional role appearing in videotape or recorded class, adding to the integration of readings and activities. Or communication takes place through educational, printed or digital resources, written in a dialogical way. In this sense, it is worth noting that despite the various digital communication resources available today, the textbook still plays a fundamental role as a facilitator of learning in autonomy-based education [1]. And at this threshold in the planning phase of the course the design of didactic resources is an element of order and some factors will influence the good performance of the course, such as: conception from the student profile; development from the experience and knowledge of the multidisciplinary team; content writing skills; choice of appropriate technology; monitoring and evaluation of the proposal developed [12]. All this discussion is highlighted by [13] as an emerging need of the knowledge society characterized by a network connection and continuous transformation. Therefore, it is emphasized that only the experience with face-to-face courses does not

guarantee the quality of the production of educational resources appropriate to distance education given its singularities. It is necessary to understand DE from a "careful planning, a systemic work and the involvement of a multidisciplinary team" [12].

It is important to highlight that, based on the characteristics of DE, it is necessary that the didactic resources presented to the student are varied and complement teaching-learning, especially considering that the target audience can be varied and present different needs. In this sense, it is relevant to consider a multimedia context that can, for example, integrate textbooks, video classes, educational videos, broadcast, and narrated screens among others in order to promote what [14] calls "being virtual together" (p. 7) whose process of knowledge construction occurs from the use of media.

III. Empirical Track

In the vision of systemic planning in Distance Education is a component of extreme importance when it comes to offering a quality course that enhances the development of the student's skills. That is, planning is one of the main elements related to the success of a course. In this sense, it is necessary to know and analyse the learning needs and, from the identification of the objective of the course, this becomes a relevant exercise to be adopted as a first step, and should be described in the organization of the instructional project that presents the main elements described in Table 1, based on the concatenation of the theoretical and empirical analysis, experienced by the authors, in the order of the last ten and different projects, of formal and informal education, with the participation of at least one of the authors.

Elements	Necessary information
Course.	• Name of the course?
Introduction	• What is the context of the application of the material.
Course Objective	• What is the proposal of the course and the intention of training?
Target Audience	• Who is the focus of this offer? • Are they graduating students? • Are they professionals in search of complementary training? • Are they professionals of a specific company?
Bibliography	• What is the basic bibliography to meet the objective of the course, considering the target audience?
Methodology	• What methodology will be used? • Will it be self-instructional? • Will there be a tutor?
Didactic resources	• What educational resources will be used in the course? • Will there be video, textbook, narrative?
Structure of the course	• What is the organization of the course and the subjects? • Will it be organized into modules according to the level of knowledge of the topic, eg beginner, intermediate and advanced? • How many units of learning per module?
Evaluation	• Will there be an evaluation? • Will it be self-instructional? • Will it be in-person? • Will it be by module? Per unit?
Timetable	• What is the timetable for the course? • Will it be organized by module, for example? Or per unity?
Important dates	• What is the beginning and end date of the course? Or will the course be available indefinitely?
Certification	• Will a certificate of achievement or participation be issued?
Production modeling	• Is there a team available? • Will it be developed in partnership with another institution? • What team would be needed

Table 1 - Essential elements of an instructional project
Source: Prepared by the authors (2018).

These 13 elements defined as guidelines for the planning of an instructional project, for a course committed to the process of teaching and learning, focused on the development of competences, were developed based on the exploratory research of the literature concatenated with empirical records of the authors based on the participation of distance education projects in Brazil. This organization starts from an analysis of the central ideas identified in the reports and registration of participation. It is recognized that for an effective organization of these elements, the participation of a multidisciplinary team with experience and knowledge in distance learning courses is fundamental. Thus, it is inferred that designing courses of quality in DE is a process that is part of a scenario that emerges from the interdisciplinary and non-disciplinary or modular practice of isolated interests.

The uniqueness of a DE course implies directly the necessary time and the essential elements of the elaboration of educational resources so that they do not act as transmitters of information, but as knowledge builders and modellers, directly reflecting the formation of individuals or organizational.

Thus, it is considered that an educational resource is the second biggest factor of attention when talking about the conception of a course in DE. This does not mean that it is necessary to speak of state-of-the-art technology, but media elements that the student, within its context, has access and aptitude to use, because this is the opportunity to value and enhance the learning process. In Table 2 guidelines were organized so that the educational resources developed favor the process of knowledge construction.

Themes of an educational resource	Description
Title	The proposal must be directly connected with the content to be presented, as well as its subtopics
Learning Objective	It should be elaborated presenting a direct relation with the competences to be developed.
Teaching Objective	Elaboration of the teaching objective indicates the main concepts and fundaments that will be disseminated in the content.
Introduction	Context of teaching learning of the discipline and units.
Content	It should present a clear and defined speech with conceptual depth and practical examples, wherever possible, in order to enhance meaningful learning. The use of illustrations, images and graphics are adequate as long as they complement the discussion presented.
Final considerations	Fundamental step of the didactic material be it as closure of content per unit or closing the total content discussed.
Learning activities	Must have contextualized statement and always prioritize for the student to mark and/or find the correct assertion.

Table 2 - Essential Elements for Designing Educational Resources
Source: Prepared by the authors (2018).

It should be noted that the organization of this framework is the result of the concatenation of theoretical data, basic to the study, and would be kept in register by the authors based on the good practices followed in the participation of the last ten projects in which one or all of them participated simultaneously.

In a complementary way, it is important to go beyond and consider the elaboration of a standard reference for the volume of educational resources to be made available for the student. Therefore, the relevance of this organization is especially highlighted for beginners in the area of production of a course in this modality since the theory still does not have a discussion in this sense. Thus, from the experience and good practices, convergent of the last ten projects that integrate the authors' professional portfolio, a reference proposal of how to work with the amount of educational resources with a view to the quality of the training is described in Table 3.

Elements	References	Example: Considering a 20-hour course
Timetable	20 hours	-
Learning unities	1 unit for every 10 hours/classes	2 unities
E-book	2 to 3 pages every hour/class	40 to 60 pages in text editor
Presentation on screen	3 to 4 slides per hour	60 to 80 in presentation file
Video	It is estimated that the student can maintain good concentration for video between 3-5min. Being able to reach 8 min. maximum.	Up to 4 videos of 8 min.

Table 3 - Reference for the elaboration of educational resources and timetable
Source: Prepared by the authors (2018).

In this sense, it is inferred that regardless of the media, whether it be a narrative, a textbook or a video, for example, these elements should guide the process of conception of educational resources. In this sense, it can be seen that the conception of educational resources for courses in DE includes complex and knowledge-intensive activities, as evidenced in [1] e [2] which considers the need for interdisciplinary action from a multidisciplinary team, where it is suggested at least: content teacher, educational designer, reviewer, graphic designer, virtual environment programmer, plagiarism analyst and multidisciplinary manager to follow the process, and these two last activities can be developed by another professional as the educational designer - one junior and one full or senior, for example. For better visualization, Table 4 was organized, which presents the description of the main activities developed by each professional involved in the production of these resources.

Professional	Activity
Content teacher	To elaborate and write the content of the educational resources, defining the subjects to be

	approached, as well as the choice of the basic and complementary bibliography.
Educational Designer	Guide the teacher and multidisciplinary team regarding the design of didactic resources for the course. Responsible for adapting educational resources through didactic transposition and course planning. This way, there's a multidisciplinary professional of interdisciplinary action in different levels that can vary commonly between junior, full and senior.
Reviewer	Perform grammatical and orthographic correction of teaching resources according to the official language standards contributing to the coherence and cohesion of the communication, besides guaranteeing the quality of the current regulations.
Graphic Designer	Develop the visual identity, image processing and other related attributions, guaranteeing the form and disposition of educational resources, valuing the technological and pedagogical tendency appropriate to the target audience of the course.
Virtual Environment Programmer	Plan and organize the Teaching-Learning Virtual Environment. Professional that works integrated to the educational designer and graphic designer and has direct action in the organization of the virtual rooms, preparing spaces and integrative resources in order to organize an online environment that is a classroom on the web.
Writer	Create video elements from the synthesis of content delivered by the teacher, write the technical script and guide the teacher to write and direct the production process.
Plagiarism analyst	Check for possible undue copying in the content of educational resources. This action aims to ensure the quality of the educational resource developed and its originality appropriate to the student's needs, measured from the course planning.
Multidisciplinary Manager	Plan, organize, accompany and coordinate the processes and people involved in this complex universe in its singularities. A competence that can be assumed by the figure of a full or senior educational designer since isolated management practices or isolated pedagogical practices do not account for the convergence that such activity requires with the technical and pedagogical knowledge necessary to accompany administrative issues such as production flow, deadlines and schedules as well as ensuring pedagogical quality.

Table 4 - Educational resource production team
Source: Prepared by the authors (2018).

In order to meet in a systemic, congruent and effective manner the different processes and activities in the production of educational resources, it becomes relevant to know the estimated time frames for different activities. A reference that can be customized, when necessary, and adjusted throughout the process, since DE besides requiring a systemic planning needs a flexible structure. In order to address an initial course planning in DE, mainly in what concerns the conception of educational resources, Table 5 was organized with main processes and estimated deadlines for this practice.

Process	Deadline
Content Creation	20 to 30 days for subjects with 60 hours/class timetable
Plagiarism analyst	1 hour for every 20 pages of text
Educational Designer	4 hours for every 20 pages of text
Review	4 hours for every 30 pages of text
Graphic Designer	4 hours for every 60 pages of text, if it is necessary to treat images it is suggested to add 1 hour
Scripting	7 days for production phase and 5 days for editing for every 2 pages of initial content, 8 min. of video
Programming Virtual Environment of Teaching and Learning	30 days for the organization of a low complexity course (up to 40 hours)
Multidisciplinary Manager	4hs/daily for a course of up to 80hs, medium complexity

Table 5 - Processes and deadlines for the production of educational resources
Source: Prepared by the authors (2018).

It should be noted that these elements and deadlines are referential and that, when applied at the institution, may change to more or less. For example, if the use of interactive screens was thought, an average of 20 to 30% increase in the time of production of the activities designated for the Educational Designer could be considered, since this professional who accomplishes the adequacy and/or planning of guidelines for the design and organization of the educational resource as envisaged in the instructional project. It should also be noted that this mapping was based on good practices mapped, registered and consolidated in a document of registration of the authors for the participation in the last projects, from 2011 to 2017, in the country.

It is suggested that the adaptation of these practices to the context of the project can be done effectively by a professional with experience in education and management, ie a multidisciplinary professional, such as an educational designer. The use of management software contributes; however, it is realized that the management software available in the market does not contemplate this specificity and they need to be customized. Specificity occurs in the context of processes and activities that do not follow a linear flow and need to be considered because they are knowledge intensive. For those who are starting, or have timely demand for projects, an alternative is to map and use spreadsheet data shared with the project team so that the integration of these steps is mapped in real time.

From the elements presented and discussed in this study, based on the conceptual conceptions, quality reference documents and empirical aspects experienced by the authors in different public and private projects in the period of 2011 to 2017, Table 6 was organized with four specific dimensions, with defined criteria to guide the design of a course in DE that promotes the development of competencies.

Dimensions	Criteria	Justification
Project	Course Objective	Defines the parameters and essential elements to be considered for the elaboration of the educational resources, gathering elements essential to an educational project organized from pre-defined beginning and end.
	Timetable	
	Target Audience	
	Methodology	
Educational Resources	Organization	Related to the content and media that will contribute to the student's teaching-learning according to the project objective, besides allowing the identification of the effective team needed for the project.
	Media used	
	Material Volume	
People	Manager	List of the main professionals involved in the design and elaboration of the educational resources that will be made available to the students.
	Content teacher	
	Educational Designer	
	Reviewer	
	Graphic Designer	
	Virtual Environment Programmer	
	Writer	
	Plagiarism analyst	
Processes	Production flow	Describes the processes and estimates the expected deadlines for the work of the production team in order to present to the institution a material that is in agreement with the one predicted in the project whose greatest challenge is to potentialize the construction of the student's knowledge.
	Deadline	

Table 6 - Criteria for designing distance learning courses
Source: Prepared by the authors (2018).

This understanding is evidenced by the theoretical discussion proposed by authors such as [12] who point out the need to work with systemic planning when searching for a course in distance education. In this sense, to contribute to the theoretical-practical advance in the area, it is understood that the guidelines described and systematized in four dimensions favor the design and development of distance education courses of quality with scientific rigor, clarity, depth, update and pertinence according to learning objectives organized in a first document that can be defined as an instructional project.

IV. Final Considerations

The objective in this study was to present guidelines for the design of courses in distance education to meet with quality the proposal of student's competency development. Thus, it was not intended to define a single model of guidelines for the design of quality courses to be offered in DE, however it is considered that the criteria presented here are orientative and require attention of those who are starting in the planning area with focus on promoting meaningful training, or to those who work in the field and feel the need to review the essential elements of an offer that is committed to teaching and learning.

It is suggested that studies and publications be expanded in this area, since there is a lack of elements for beginners in the design of courses for Distance Education. As well as the lack of reference of good practices in the elaboration of educational resources, an essential tool in this planning. It should be stressed that the need for continuous training coming from the knowledge society, elements such as teaching objective and training skills are pillars to be considered as minimum elements of attention. To do so, to extend these proposed requirements, as well as to apply in more projects to be analysed as quality referential, is considered fundamental for the construction of a Distance Education that transforms citizens into critical individuals who have participation in the construction of a fair society by competence and not just by oppression of decoupled speech or absence of voice.

Finally, it is inferred that quality DE courses can present different designs in various combinations of resources, processes and people involved, however the defined criteria are considered references to a planning and offer that keeps in the core of this discussion "the student".

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