ΣΟΦΙΑ–SOPHIA

Good practices in virtual higher education based on specifications for e-Learning standards*

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Abstract

Currently there are offered free courses, complete academic programs and partially and totally virtual universities, which shows an increase in the offer and coverage in higher education. With this growth, new needs arise from questions about the quality of education, which depends on many factors, for example, on the normalization of online or virtual academic spaces. This research proposed the creation of a set of technical, administrative, communicative and pedagogical specifications for the improvement of virtual training at the University of Quindío, which serves as a reference of good practices for university professors. In this process, significant experiences were collected and, as a final result, a proposal was constructed in the light of the categories created by international standards organizations. With this, normalization processes were initiated, which contribute to the strengthening of the quality of education.

Keywords: Standards, virtual education, educational platforms, E-learning, educational quality.

Introduction

With the invention of the computer in the mid-twentieth century, some problems of industry, commerce and services were solved. Two significant technological contributions made great contributions, the personal computer and the appearance of the internet. With them, computer access to the home was facilitated. Since then, the possibility of using computer resources in education has been considered, but significant steps were only taken at the end of the 20th century (Barberá, 2008). This way arises the concept of virtual education, a subset of distance education, which in turn has had several stages, depending on the means used (Carmona and Berrío, 2008).

Today, information technology and its uses have evolved into a broader concept, that of Information and Communication Technologies (ICT); or according with some authors, Information Technology (IT) (Carmona, Nieto and Rubio, 2006); while for others, Information, Communication and Knowledge Technologies (ICKT) (Carrasco & González, 2011), but all these acronyms involve a set of technologies, including computing, telecommunications and mobile device networks; then, ICTs applied to education emerged, as support systems for both face-to-face training and online learning, creating new environments which range from virtuality as support to face-to-face, to total virtuality, depending on the types of initiative, the technology used and the demand to be met.

Virtual education in Colombia is a reality that can be seen in the growing demand and supply of programs; to such an extent that all universities offer virtual courses (Facundo, 2011, Carrasco & González, 2011 and Sierra, 2009). This growth can be seen in Figure 1, in 2013 there were less than two million face-to-face students and about 300 thousand in distance and virtual programs. By 2015, the number of students exceeded two million and those enrolled in virtual mode amounted to 65,000, which reflects an increase of 30% in relation to the previous year[1].

The University of Quindío has also been gradually increasing its offer of virtual courses. But this growth has not been mediated by a process of systematic and orderly planning. It is therefore necessary to undertake several actions, which guide not only the implementation of courses and virtual programs, but also the improvement of education using the potential of ICT. Normalization and standardization is a good alternative to initiate processes that lead to guarantee high-quality virtual programs, taking into account that one of the most important factors for any type of instructional material being of quality is that be useful for the achievement of learning, under norms and minimum standards.

Donna Zapata in a document made by the Colombian Institute for the Promotion of Higher Education (ICFES, for its initials in Spanish)[2], affirms that if Colombia wants to take advantage of the advances of ICT in favor of education, it needs to speed up the projects to conform university networks that have been brewing for some time. As a conclusion, she affirms that the work of higher education institutions is not enough to respond to the modernization and quality demands that are required for education to become an agent of progress for this country (Zapata, 2003).

Figure 1. Number of students enrolled in higher education in Colombia.
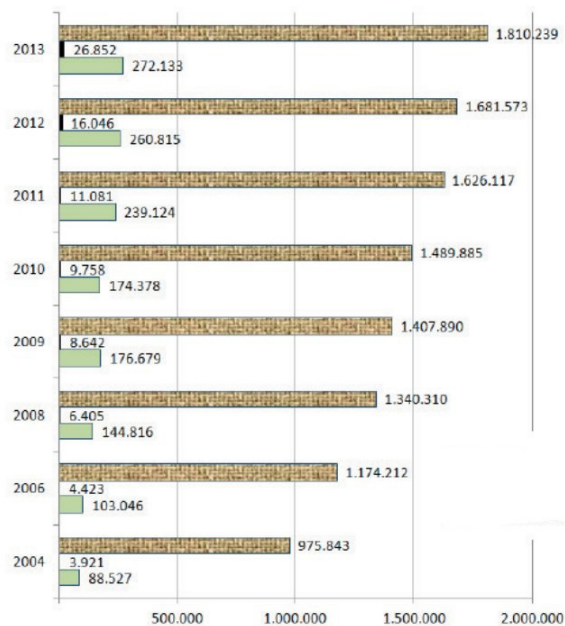
Source: National Higher Education Information System (SNIES, for its initials in Spanish) - Ministry of National Education.
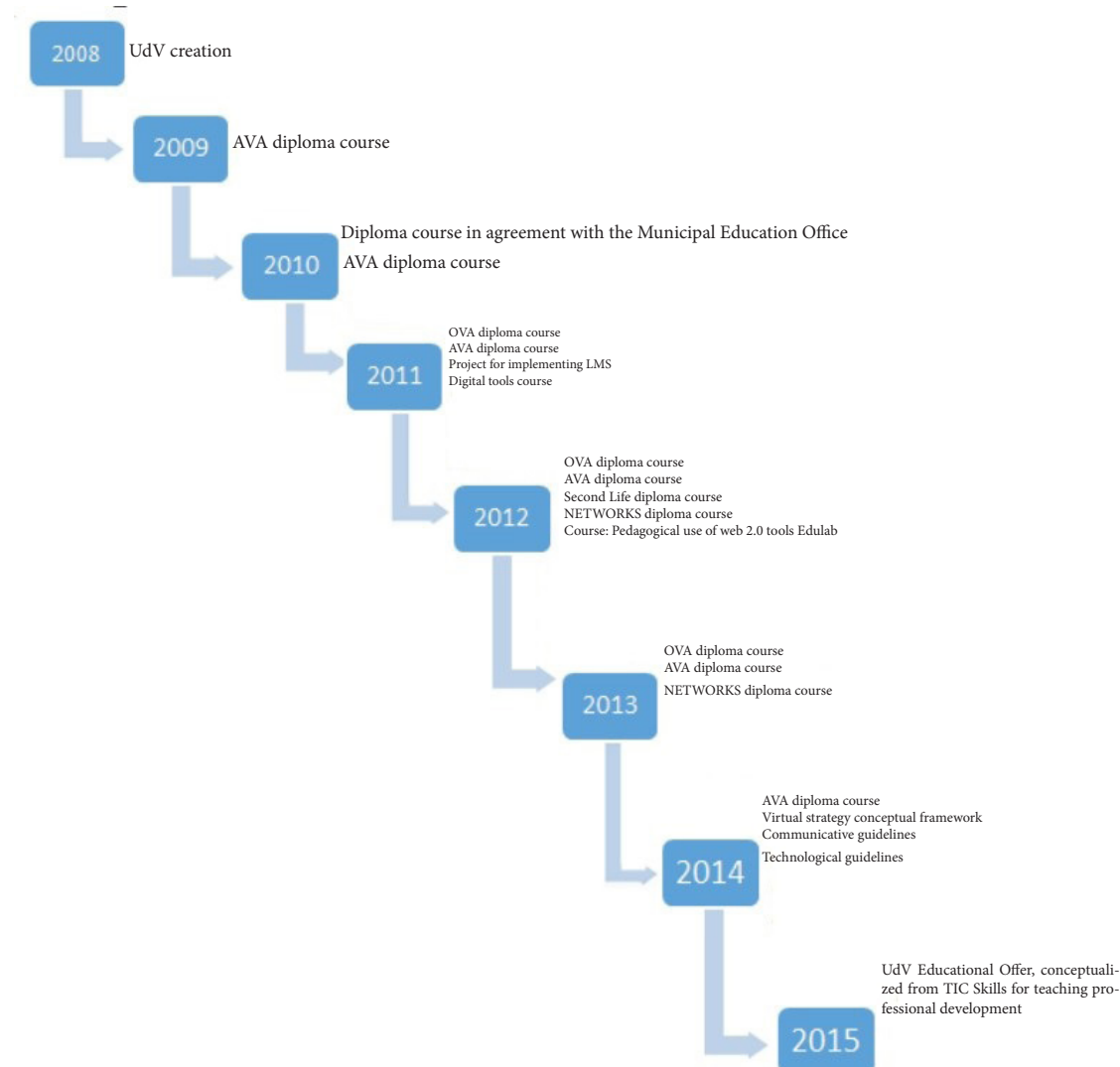
Universities - including the most traditional ones - already offer virtual courses (Facundo, 2011, Rodríguez & Sierra, 2007 and Aldana, 2003). As an example, the Central University of Colombia has extension courses and postgraduate programs in virtual mode, following the guidelines promoted by the Ministry of National Education (MEN, for its initials in Spanish), related to modernization and innovation in the sector. In this context, the University has consolidated its virtual proposal under a model of excellence training based on academic quality standards. In 2013, the MEN granted the Central University the first Qualified Registry for the Postgraduate Program in Industrial Mechatronics, (which is) 100% virtual.

In the case of the University of Quindío, within the framework of this project, it was made an analysis of the way in which virtual education has been implemented through interviews with the main actors, documentary review and direct conversations with professors. It stands out how since the year 2000--when the first efforts began for the initiative of some professors--until now, it has been conformed an office that centralizes all virtuality processes, called the Virtualization Unit (UdV, for its initials in Spanish).

The Virtualization Unit was born in 2008, as an evolution of the Virtual Classroom Project of the Faculty of Education. At that time, the guidelines of the MINTIC were oriented to the design of virtual programs; it was that way how the university developed a curriculum for the technical and technological cycles in the Tourism area (see Figure 2).

Subsequently, it was designed a Diploma program in Virtual Learning Environments, which aims to train professors of the University, for performance in learning environments mediated by LMS platforms. From this diploma program, 9 cohorts have graduated.

Figure 2. Actions (performed) in the Virtualization Unit, University of Quindío.

2008 UdV creation

2009 AVA diploma course

2010 Diploma course in agreement with the Municipal Education Office
AVA diploma course

2011 OVA diploma course
AVA diploma course
Project for implementing LMS
Digital tools course

2012 OVA diploma course
AVA diploma course
Second Life diploma course
NETWORKS diploma course
Course: Pedagogical use of web 2.0 tools Edulab

2013 OVA diploma course
AVA diploma course
NETWORKS diploma course

2014 AVA diploma course
Virtual strategy conceptual framework
Communicative guidelines
Technological guidelines

2015 UdV Educational Offer, conceptualized from TIC Skills for teaching professional development

Sources: Virtualization unit and self-made.

Under the same guidelines, it was designed a Diploma program in Virtual Learning Objects (OVA), which becomes the Diploma program in Open Digital Educational Resources (REDA, for its initials in Spanish) - from the first semester of 2015 on - due to the conceptual rethinking of the MEN and following the philosophy of *Open Educational Resources*. The efforts of the Virtualization Unit are then concentrated on:

a) Sensitizing professors about the importance of implementing technologies within their pedagogical designs.

b) Structuring a professional team that responds to the complexities inherent to the technological implementation, developing strategies in four components:

Organizational component: in which there are developed the necessary steps to allow the operation of the Virtualization Unit.

Pedagogical component: it accompanies the curricular designs of the professors.

Technological component: it focuses on the maintenance and administration of the Learning Management System (LMS) platform.

Communicative component: it is responsible for establishing guidelines for the design and production of educational content, incorporating various media and ICT, new narrative forms and textual typologies.

The Virtualization Unit is responsible for managing the platforms:

Virtual academic spaces: it houses courses that are projects prepared by the professors trained in the AVA diploma program (it has 40 courses).

Support Resources Platform: it hosts courses produced by self-taught professors who create resources, which are the result of their personal exercises aimed at exploring the tools of the platform; these courses usually do not comply with the guidelines established by the Virtualization Unit (it has 168 courses).

Platform of tests: in this platform, there are performed the different tests for implementing new Moodle functions.

In addition to these platforms, the Virtual Campus of the University has an additional installation of Moodle to attend all the subjects of the program of Information Sciences, Documentation, Library Science and Archives (CIDBA), which is completely virtual.

The work team of the UdV has seen the need to establish guidelines for the virtual strategy, understanding that it is a transversal action within the organizational structure of the University of Quindío.

In this sense, we see the need to construct different documents to share with the academic community the conceptual organizational, pedagogical, communicative, technological-constitutive elements of the virtual strategy, with the purpose of unifying criteria. These documents are:

- Conceptual framework

- Infographics (about) virtual strategy concepts.

- Pedagogical guidelines

- Infographics (about) pedagogical guidelines.

- Communicative guidelines.

- Infographics (about) communicative guidelines.

Likewise, the UdV carries out management activities within the educational institution with the purpose of promoting the appropriation of the virtual strategy by each of the academic programs. For this, it makes a permanent call in the topics related to the formation of ICT skills for the professional development of professors.

However, at the University of Quindío as in the vast majority of institutions, and as it was stated by Hilera and Hoya, all this proliferation of virtual courses arose and developed without an adequate framework in terms of technical, documentary and psycho-pedagogical methodologies, which leads to problems of accessibility, interoperability, durability and reuse of curricular materials available in different communication networks (Hilera González & Hoya Marín, 2010). It is then necessary to use standardization processes that guide a better quality of the produced materials and, consequently, the quality of the training. This leads to the concept of "standard".

According to the *International Organization for Standardization* (ISO), which brings together the different national organizations of standardization: Standardization is the activity that aims to establish, for real or potential problems, provisions for common and repeated uses, in order to obtain a level of optimal order in a given context, which can be technological, political or economic. (ISO, 2009).

There are two types of standards: the official ones, or "*de jure*;" and those "*de facto*". The first ones are those that have been approved and sanctioned by a national or international standardization body. These, in some cases, are mandatory, for example: that all official websites must meet a certain level of accessibility for the disabled. The *de facto* standards are those that are

used by own will or convenience, and that are widely accepted, even if they have not been sanctioned by a standardization body. The best known case on the internet are the recommendations made by the World Wide Web Consortium (W3C), which creates the rules probably most used in the network; for example, the HTML language (and in many cases, after being published, they become recognized as formal standards).

The e-learning standards represent the possibility of avoiding various problems originated in the pedagogical practice mediated by the TIC, among them: portability, that is, that the contents can be moved and stored in different platforms; interoperability, that is, that they work on different hardware and software platforms; that they be reusable; that serve as a basis for the creation of other courses and applications; that be accessible and usable; and that have metadata to facilitate their location. So far, there is no single methodology that guarantees the objectives of accessibility, interoperability, usability, accessibility and reuse of educational materials in the network (Hilera & Hoya, 2010; Wiley, 2007).

Several organizations have generated e-learning standards with the dual purpose of systematizing processes and creating shared and quality educational materials. These include: ADL (The Advanced Distributed Learning), AICC (Aviation Industry Computer Based Training Committee), CEN (European Committee for Standardization), IEEE (Institute of Electrical and Electronic Engineers, and within it, the LTSC or Committee for the Standardization of Technologies Applied to Learning), IMS GLC (IMS Global Learning Consortium), ISO/IEC (International Standards Organization in collaboration with the International Electro-technical Commission) ARIADNE (Alliance of Remote Instruction Authoring and Distribution Network for Europe), DCMI (Dublin Core Metadata Initiative) and W3C (World Wide Web Consortium).

These organizations have created standards that are responsible for standardizing E-learning categorized into: contents and assessments, usability, accessibility, interoperability, architecture, quality, skills, copyrights, student information, metadata, learning processes, repositories, vocabulary and languages. Some of them are: AGR009 (1996), EFQM (1999), AGR002 (2002), IEEE 1482.2 (PAPI) (2002), CanCore ES (2002), EdNA MD (2002), UNE 139801 (2003), IMS ACCMD (2004), IMS DALA (2005), CORDRA (2005), SCORM CAM (2006), UNIQUe (2006), CWA 15533 (2006), HR-XML (2007), ISO / IEC 24751-1 (2008), ISO 9001 (2008), LORN MD (2008) and WAI ARIA (2009).

In 2005, the Colombian Ministry of National Education (MEN) launched the first national learning objects competition with the purpose of consolidating, for the first time, a bank of learning objects and making it available to the national and international educational community. One of the requirements made to the participants was the creation of a technical sheet with all the attributes and description of use of the learning object, in such a way that it would allow an easy cataloging and exchange of the same. This forced to think about the search, analysis and revision of the existing standards to date. The MEN adopted from this study the Dublin Core metadata, the packaging through Scorm, the content management system (CMS), Drupal and DSpace for making up the Object Bank (MEN, 2012).

A year later it was necessary to make visible and usable the learning objects (that were) created, for which, it was thought of an easy and timely classification standard for accessing to objects, which were arranged in categories and areas of knowledge; therefore, an application profile of a metadata standard was defined, which was based on the IEEE LOM standard, and adjusting the application profile to the country's own requirements, it has been implemented an adaptation of this standard, which has been called LOM CO to describe the technical and educational aspects of the objects of the National Bank and institutional banks.

LOM CO defines the following compulsory metadata for the Learning Objects of the National Bank, and considers optional those corresponding to the other fields of the IEEE LOM specification (Agudelo Benjumea, 2009):

a) **General**: title, language, description, keywords.

b) **Life cycle**: version, author (s), entity, date.

c) **Technical**: format, size, location, requirements, instructions for use.

d) **Educational**: type of interactivity, type of learning resource, level of interactivity, target population, learning context.

e) **Rights**: cost, copyrights and other restrictions.

f) **Relationship**: it defines the relationship among learning objects.

g) **Annotation**: educational use.

h) **Classification**: classification source and taxonomic route.

The Colombian Government became aware of the importance of virtual education and therefore promulgated Decree 1295 of 2010, through which it provided education tools that would develop a new educational philosophy, and it is in that direction where must point the task of teachers, to understand that without this we cannot have high quality standards,

enough to deliver honest professionals to the country's labor sector (Zuluaga, 2010).

With the above there were set the conditions for investigation. On the one hand, a global trend, and on the other, some progress at the national level. This research is justified because it is important to determine for our institution the guidelines in terms of standardization of virtual education.

The main objective of this research is to formulate a set of specifications that guide the quality of virtual education establishing an e-learning standard, in order to facilitate the normalization of processes in the virtual modality at the University of Quindío. For this, intermediate goals should be met, such as:

a) Making a diagnosis of how virtual education processes have been implemented at the University of Quindío.

b) Analyzing the different processes of normalization and standardization for virtual education, which have been generated at a global level, and particularly, those adopted by the Ministry of National Education of Colombia.

c) Preparing a set of technical, administrative and pedagogical e-learning specifications for the University of Quindío, in which be proposed an action plan that contributes to the implementation of standards that guide educational quality.

Materials and methods

The research has a qualitative orientation, since it combines ethnographic techniques and Research Action Participation (IAP, for its initials in Spanish). The ethnographic component is based on a reflection on the study of the evolution of virtuality in the University, the analysis of the state of the art of standards in virtual education, and the way in which technological devices mediate educational dynamics. From the perspective of the IAP, an improvement strategy is elaborated through the creation of a set of specifications that are materialized in a manual of good practices and a methodological design for the implementation of such manual.

Initially, it was made a bibliographic review of the state of the art in standards for virtual education, which allowed the theoretical foundation; then, an active observation, by visiting five universities in order to make a national contextualization about the state of the art. Unstructured interviews were conducted within the University of Quindío with virtual strategy leaders and surveys of virtual course professors. The analysis of the state of e-Learning was carried out through observation instruments to a sample of the courses in operation in the educational platform. The population under study is made up of forty professors who participate in virtual training, to whom the instruments and methods of observation proposed were applied.

Results

We were based on the study of the implementation of virtual processes in higher education, and particularly on concepts related to quality standards, that is, the desirable characteristics to generate successful virtual environments.

After analyzing the different standards and specifications used in teaching, and globally recognized by the aforementioned organizations, a wide range of proposals was found, which limits the analysis of some standards. In the same way, it was detected that no standard covers all the aspects that a university context demands. Here we agree with the report 16 of the Ministry of Education and Science of Spain, in which they are referred to as "the most mature;" and are those that address aspects related to content, how courses are packaged, how courses are described as the own elements that compose them (Fernández, Moreno, Sierra, & Martínez, 2008).

It was considered, in agreement with Adell, Bellver and Bellver (2007), that three experiences are sufficiently argued as to be considered in standardization processes in any university institution; they are: IMS (Global Learning Consortium, Inc.) is the main promoter and developer of open specifications in aspects of virtual education; the one developed by ADL in its *Scorm* reference model; and the contribution of IEEE LTSC with its metadata proposal for learning objects.

At the local level it was observed that the University of Quindío considers as one of its strategic axes for academic excellence, the acquisition of didactic instruments, technology and computer media, in accordance with the guidelines of the Ministry of National Education. For the fulfillment of this purpose, an analysis of the state of the art is made, with respect to the new forms of learning, some trends in the knowledge society and how to use new instruments to facilitate the teaching-learning process. From there arises the following question: Do the standards and guidelines that allow the construction of technological, innovative and creative educational projects contribute to educational quality? In an attempt to answer this question, researchers begin to find clarity regarding strategies for technological implementation that positively impact learning spaces within the University.

Finally, it was obtained an instrument for action, that is, a document that serves as a guide to the institutions

for the future development in virtual education, and to teachers so that they can, in a more assertive way, face virtualization processes. It was considered that it has a research-action component, as well as the condition that we have about researchers, immersed in the system under study.

Discussion

Although the standards are built to meet norms, in this exercise of reflection, design and research it has been understood the need to accommodate contextual situations and generalizing specifications, understanding that in the complex educational reality interact a variety of factors that stimulate or interfere the learning processes. It is clear that although the follow-up of an international policy in this area would allow the University a globally recognized and guaranteed standardization, on the other hand, it is important to consider that a threat to be overcome is to respond to particular needs. In the following sections the proposal made is described, in order to comply with the proposed objectives.

Proposed specifications for virtual education standards

Several authors agree on the need to consider the categories that support the requirements of a standard (Viscay, 2005, Hilera González & Hoya Marin, 2010). For the case of the University of Quindío, the definition of the following characteristics was considered important:

Transversality: educational content that deals with general topics and that can be used by different areas of knowledge (Ethics, Entrepreneurship, Proficiencies, Political Constitution, etc.).

Transmedia: the educational contents must be prepared, designed and produced, taking advantage of the peculiarity of the medium; within this characteristic, it is appealed to granularity, which refers to the narrative use of the medium that supports it and gives the possibility of articulating itself to global structures (courses).

Functional design: each educational content must respond to a purpose and an educational intention. Professors have to work in an articulated manner, with creative teams, experts in design, narrative forms, animation and composition, to guide the production of educational contents in the best possible way.

Administrative management: each educational content must respond to an academic need that supports and guides the production process.

Licensing: to establish clear terms and conditions for the use, modification and personalization of educational content, and, whenever possible, the promotion of *copy left*, through the Creative Commons licenses, and particularly, the Creative Commons Colombia, without ignoring the traditional licensing systems.

Conceptual unit: the institution must establish a conceptual framework for the understanding and dissemination of the institutional educational project.

Likewise, in order to present the proposal of standard for the courses mediated with technology, it was considered important and fundamental to take up the concepts established in the conceptual framework of the Virtual Strategy of the University of Quindío, which define the different methodologies, within which they develop e-learning and b-learning courses, as it is shown below:

Face-to face: It is characterized by the realization of "master (face-to-face) classes", with the support of didactic units and tools such as projectors, boards or interactive (tactile) whiteboards.

Virtual - e-learning: Methodology that is carried out through the use of information and communication media and technologies - MTIC. It incorporates a pedagogical and methodological design in the development of the thematic contents, and (it) contemplates 100% virtual activities among the participants (teacher/students). In general, the development of activities is done asynchronously.

B-learning: It combines virtual and face-to-face methodologies. It incorporates the pedagogical and methodological design in the development of the thematic contents, distributed with a minimum proportion of 60% for virtual activities and 40% for face-to-face activities.

Distance: According to Decree 1295 of 2010, "it corresponds to those whose educational methodology is characterized by using teaching - learning strategies that overcome the limitations of space and time among the actors of the educational process.

Concept of standard for b-learning and e-learning courses

A definition was elaborated in agreement with the international organizations and in consideration with the particular aspects for the case of the University. A standard is then conceived as: a set of technical, pedagogical and administrative specifications that regulate the design, production and implementation of educational resources, whose objective is the interoperability among these resources built by different professors, in different programs, with variety of supports and under criteria of unification, standardization and rationality of the cost.

These specifications have open characteristics that foster the collaborative construction of educational resources, understood in a broad sense that includes the most granular dimension of an educational resource: the Learning Objects, up to the most complex structure: the LMS platforms.

Specifications for the standard

For this research, it is presented a set of specifications that result from an international documentary review and the conceptualization according to particularities detected in the educational reality, as well as in the local context. The criteria of (having) respect for copyright, as well as administrative aspects, are some of the important components when implementing technological strategies within the Institutional Educational Project of the University of Quindío.

All the standards are classified into categories, which create specifications by way of fragmentation of the problem. These specifications are: usability, accessibility, adaptability, modularity, didactic, pedagogical, communicative, classifiable and licensed. Next are presented a set of specifications that compose, according to this proposal, the e-learning and b-learning quality standard for the University of Quindío. These specifications must be taken into account when designing and planning educational resources.

Specifications for a standard

Accessibility[*3]:

Quality that seeks to ensure that the course or resource can be consulted and/or used by the greatest number of people, including those who are disabled, and in the same way, those who do not have adequate technical and technological conditions.

The course will have an off-line version, available in portable support (CD- USB).

The educational resources of the course must be licensed in such a way as to allow its access and distribution through supports such as CD- USB.

Adaptability

Property that allows resources to be modified, adjusted or customized according to the interests, needs or expectations of the user.

Usability

Property that guarantees the correct interaction with the user, in order to provide a comfortable, pleasant, easy and efficient experience.

Modularity

Capacity that allows interacting or integrating with others, in the same or different conditions and contexts, and thereby expanding their possibilities for educational use.

The design of the course should consider each learning activity as a unit capable of combining and recombining, according to the needs of the teacher and the subject. The activities must be designed to be shared by the teaching group that guides the subject.

Pedagogical

Characteristic that incorporates a formative function; it covers from the most granular structure –a learning object– to the most complex one –a platform–.

The learning activities must respond to the skills that the student must develop. These skills guide the educational purposes of learning activities.

Communicative

Property that guarantees the clarity of the message in relation to the use of the resources and contents themselves.

The course must present procedures for the development of learning activities and mediations necessary to understand the handling of digital applications and laboratory equipment and practice, these resources must be arranged within the learning activity.

Classifiable

Property that makes possible its cataloging and ordering.

Licensed

Characteristic that defines the conditions of use of resources.

Components of a course from the perspective of the standard

As shown in Figure 3, a course mediated with technologies is the result of the articulation of different components, understood as technological resources and procedures and necessary steps for its viability.

**Figure 3.** Components of a course
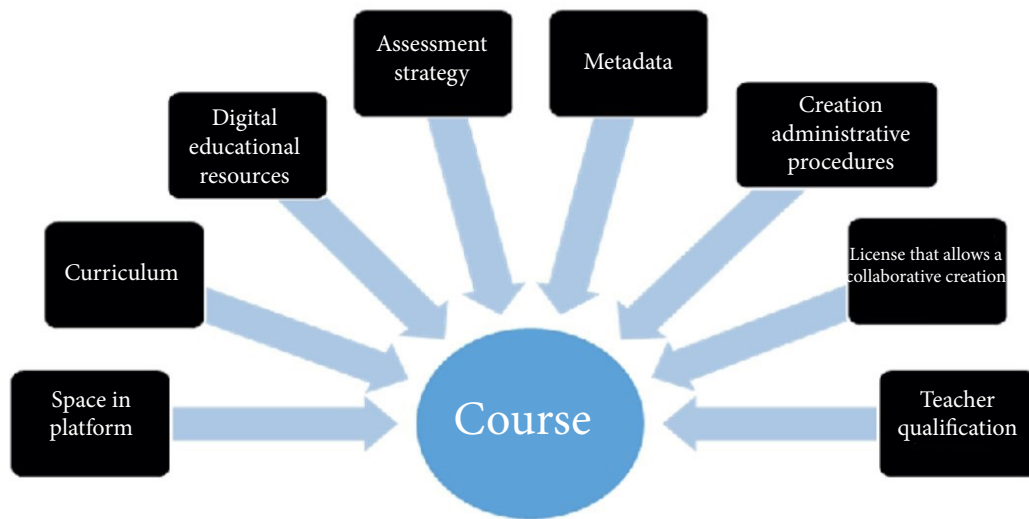
Source: self-made

Application of specifications

For the implementation of these specifications are taken into account documents and procedures already defined within the Virtual Strategy of the University of Quindío. These inputs are used in the flow chart of Figure 4, which represents the procedure for the creation of technology-mediated courses.

Figure 4. Procedure for the creation of courses
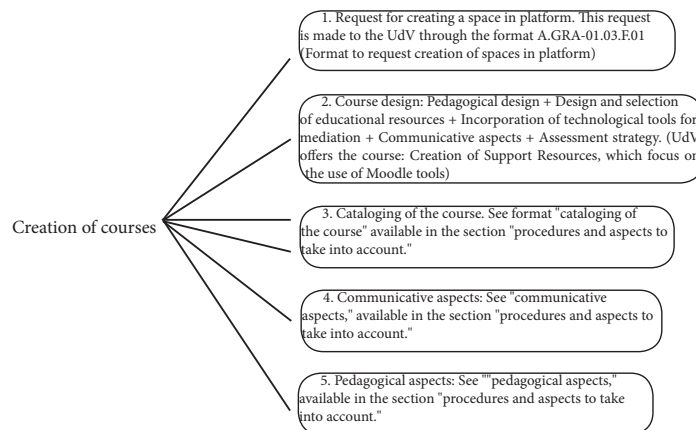
Source: Virtualization Unit and self-made

General configuration of the courses

From the implementation of these specifications, the courses that are created in the platforms should follow the recommendations for the general configuration of the course, as it can be seen:

Recommendations for the configuration of courses

Name of the course or training space

It should reflect the general content of the course; this should be clear and concise.

It must contain initial capitalization in each word, except in the prepositions; the acronyms must be in capital letters. Example: Strategies for Performance in AVA Cohort IX G.

Short name

It must contain: The initials of the faculty, year, semester (understood as the academic period of the year) and the initials of the course.

The initials of the faculty will be the following:

Human Sciences and Fine Arts: CH

Education: ED

Health Sciences: CS

Engineering: IN

Economic and Administrative Sciences: CE

Agro-industrial Sciences: CA

Basic and Technological Sciences: CB

For each year, the last 2 digits will be taken (into account).

The semester or academic period of the year, and they will be coded as 1 and 2.

Example: the course CH142CAG3 means that it is from the Faculty of Human Sciences, year 2014, second semester - Assertive Communication; and it is the group 3.

Academic program

Name of the academic program or administrative unit to which the course or training space belongs.

Course overview

Course description in 140 characters. The text should contain a summary of the fundamental aspects of the course, such as: subjects, skills to be developed (only initial capital letter).

Number of units

Here there are described the total number of units, modules and sections that make up the course.

Communicative aspects

Communication is considered a very important component in the quality of the course, so it is considered that every course should consider the following aspects:

Teacher presentation

The course must contain a presentation video of the teacher, who quickly makes a personal and professional presentation. This video can be integrated with the video presentation of the course.

Presentation of the course

This presentation can be done through video or audio. In this resource, the teacher makes a synthesis or introduction that allows the student to know the generalities of the course (contents, evaluation, methodology, schedule, etc.).

Teaching aids

The teacher must specify the means through which he will advise and follow up the students, the hours of attention and meeting places.

Tutorials and video tutorials

If required, the teacher must provide the means necessary for students to know how to use equipment and devices in different practices and laboratories.

Response time

The response time to the questions and concerns of the students of the course must not exceed 24 hours.

Forum (for) doubts and concerns

This participation space offers the opportunity to record the concerns of common interest about the contents and activities of the module. This forum should be proposed as a collaborative space, where answers and orientations are found, not only by the teacher, but also by the other members of the group.

Forum "Let's get to know each other"

(News)

This space will allow students to get to know each other and interact with their classmates.

Profile

The profile must contain updated data of both students and the teacher. Contact information -picture- undergraduate program - interests: academic, cultural and sports.

For professors, it must also contain professional training and work experience.

Calendar

This resource relates the development of the course activities, showing them in the block of upcoming events.

Pedagogical aspects

The most complex component, given the magnitude, in the creation of courses is the overwhelming use of pedagogical arguments that contribute to achieving the goals efficiently, it depends on many factors and involves largely the activities of professors in the day-to-day development of the courses. A strategically designed course, with a defined pedagogical component, is expected to be a successful course, but it always depends on the teacher who guides the course. However, the following specifications are proposed as a contribution to the pedagogical component:

General guide

As part of the development of the virtual course, it is necessary that the teacher elaborates a general guide of the course (that be) available in the platform.

Methodology

Taking into account the academic credits or the intensity of the time of the virtual course, as well as the relations between the students' independent study time (IT), the time for collaborative work among students (TC) and the time of work of tutoring or accompaniment by the teacher-tutor (TT), the teacher must propose a work schedule that allows students to organize their times daily or weekly study, specifying which of the proposed learning activities will be fed back and qualified, and their percentage in the final grade.

This implies to foresee with special care, to quantify the time the student should devote to the study of reading materials, to approach activities, to seek information or teamwork, to prepare academic contributions, and other activities in which students should incur under the principles of self-discipline and collaborative learning, also specifying the times in which they will accompany or receive feedback from the tutor.

Conceptual network

It shows a scheme or map of the course's own concepts.

Own intellectual production

Priority should be given to the elaboration of own contents that express the ideas, thoughts and criteria of the professors, in front of other sources and other authors. This with a view to expanding the repository of educational resources available for the development of learning activities.

Evaluation

There should be accepted the recommendations on the evaluation of learning, adopted by the University in the respective syllabus. For the design, assembly and development of courses, the displacement that goes from the qualification to the evaluation must be identified, and this must be specified qualitatively until the formulation of the way the participant's work will be evaluated.

In addition, the percentages of each of the components of the evaluation must be specified.

In the forums, there will be evaluated the quality of the interventions recorded in them.

Educational resources

All the books, readings, resources and complementary material for the achievement of the objectives must be facilitated, showing respect for the author's rights.

Bibliography/webgraphy

The teacher must provide all links or access links to the study materials: sites, digital libraries or repositories of educational content, taking into account author's rights and licenses for use.

The previous synthesize the communicative aspects, pedagogical and the configuration of the courses, which joined to procedures for their creation, conform the set of specifications to guide the e-Learning processes, with the expectation that they become a standard for the University of the Quindío

The above summarizes the communicative, pedagogical aspects and the configuration of the courses, which together with procedures for their creation, make up the set of specifications to guide the e-Learning processes, with the expectation that they become a standard for the University of Quindío.

Conclusions

As a first result of the conceptualization and documentary review of international standards, it was made a characterization of the virtual processes in the University of Quindío and its location in the global context. From this arose the importance of considering essential components when implementing virtual education strategies, such as: respect for copyright, technical and academic-administrative aspects.

The virtual condition is recognized as another form of participation of the University in the regional

community, which demands the design of strategies in order to offer quality educational processes that are useful in the different modalities (face-to-face - virtual).

Usability, accessibility, adaptability and modularity are concepts validated and shared internationally, presented by different entities specialized in standardization. In consonance, transversality, functional design, administrative management, licensing and conceptual unity are concepts that respond to reflections on the educational and contextual peculiarities.

A learning environment is effective if it has coherence in the guidelines that underlie its design: pedagogical, communicative, organizational and technological. Although standards are built to meet norms, there has been understood in this exercise of reflection and research the need to accommodate contextual situations with generalizing specifications. Understanding that the complex educational reality must be approached from a flexible thinking, standards are conceived as specifications that guide the design of educational processes that incorporate the virtual and the technological.

Because educational practices are strongly mediated by digital artifacts, they must be thought and designed from perspectives that enable knowledge to be distributed and shared; in this sense, the incorporation of standards in education should be oriented to give clarity in the procedures to be taken into account, both in the production and in the implementation of technological mediations. Standardization must be applied with the purpose of establishing processes and procedures that articulate and make evident in each design the coherent dialogue of the guidelines that constitute the Virtual Strategy.

It was designed a set of technical, administrative and pedagogical specifications, which must evolve towards a quality standard for virtual education that meets the guidelines of international organizations, and that be strengthened with local needs and projections. This is, without a doubt, a significant step in the process of seeking better levels of educational quality.

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