Article Title: Self-regulated virtual training

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1. SUMMARY

This article addresses self-regulated virtual training as a macro-process, the result of which allows the participant to learn at their own pace and without the need for tutorial accompaniment to address content aimed at strengthening their competence in a clearly defined work context, using videos, audio, podcasts and texts in pdf format. It seeks to apply the principle of complementarity in the use of face-to-face and distance modalities, since they have frequently been considered non-binding, even antagonistic, when in reality their independent or dependent use will be based on the training situation, the interests of the group goal and institutional possibilities.

It is intended that virtual training responds in a timely manner with quality and relevance to training demands, based on the processes required for technical-professional training, based on constituent elements of the information and knowledge society, on pedagogical, methodological and andragogical elements of virtual training, Information and Communication Technologies (ICT) tools and good practices developed by institutions, training centers and education in virtual training projects.

2. INTRODUCTION

Information and Communication Technologies (ICT) are transforming both the way of facilitating learning and the way of learning, the roles of teachers, tutors and administrators of training and training institutions in the same way modify the training strategy by offering diversity of resources to support the development of content, training and assessment activities, promoting meaningful, active and flexible learning.

Technical training and education institutions face the challenge of facilitating distance training by virtual means to promote, through communication systems, accessibility to new information that should be transformed into knowledge; contribute to the integration of a more personalized training system; increase the flexibility of services and conditions for virtual training; and make available resources, environments and virtual contexts significantly more interactive, either through agreements with organizations or by developing them internally.

This article presents a macro-process of self-regulated distance training by virtual means with adherence to the systemic approach of professional training and technical education, based on the didactic triad (student, teacher and knowledge): skills, content, activities and virtual resources. Also, considering the process approach: inputs, activities, outputs, technical-methodological guidelines and resources / managers; as well as good practices in the

development of individualized virtual training projects. A self-regulated virtual training system is proposed which is divided into three processes:

- Needs analysis, response approach and design of virtual training.
- Development and production of virtual resources.
- Implementation of platforms, development of training and evaluation and optimization of the training system.

The way to intervene institutionally to plan, organize and execute effective individualized virtual training will depend to a large extent on the ability to integrate multidisciplinary teams with experience in the investigation of training needs, in the definition of competences, in the definition of instructional designs, in the elaboration of texts, audios and videos, didactic mediators, editors, graphic designers, style editors, platform developers, administrators of educational processes and technological supports, who should be in charge of ensuring that in the area of their competence, quality, relevance and opportunity of the training process to guarantee meaningful learning. Although it is true that distance training has managed to position itself in technical and professional training, it is appropriate to recognize that it is not a substitute for face-to-face training, but a good complement to it, mainly in those processes where the development of skills is required. and skills, coupled with behaviors, that require work-learning activities.

3. DEVELOPMENT

Fundamentals of virtual training

The information society supported by the use of Information and Communication Technologies (ICT) has caused a significant evolution in society and therefore in the economically active population. The technological boom supposes a transformation in various contexts, such as l educational, family, social, cultural, political and economic.

Information and knowledge societies create favorable scenarios to transform occupational training, in order to achieve quality standards in the training offer that promote technological development and innovation for the well-being and progress of institutions and training centers for the job.

Virtual education, with all its variants, is, today, an extremely important tool to address academic and professional training issues, as well as specific demands, which require changes in traditional teaching models.

Distance education developed in Virtual Learning Environments (VLE) has increased in the field of vocational training. Due to the diversity of specialty areas that professional training encompasses, the development of virtual content on educational platforms requires a wide training offer designed and created specifically for these environments that includes valuable content, virtual resources, constructivist evaluation systems, type of product and certification process, among others.

The new teaching systems in virtual learning environments have caused a different trend in the ways of learning, which is why they are considered as "new models". The diversity of new teaching models is an option for all those people who, for some reason, cannot attend a physical space at a certain time.

The methodology and didactics of the design of these virtual contents must go hand in hand and be coherent and gradual in the different media available for virtual training. For this reason, the way of transmitting information must include a robust design that, in turn, is friendly and methodologically well structured so that the end user feels comfortable in the development of their training.

Distance training, developed in Virtual Learning Environments (EVA), is today a very important delivery modality to complement the initial face-to-face training of young people and adults, in the same way for the complementary training of workers and people in search of self-employment. This training can be developed under two types, the first group training, with the support of a tutor through synchronous and asynchronous actions and the second with a self-regulated (individualized) training, which allows the participant to develop their own learning.

Self-regulated (individualized) training allows the participant to develop their own learning process; In other words, the participant is autonomous, he is the one who plans his rhythm and his time of dedication to training and to participation in tasks or activities. In addition, it allows you to evaluate her learning through various learning strategies that favor the participant's action without the need to be in direct connection with tutors or other participants.

The platform on which the training is offered will present the progress of the training, according to the assigned resources, grouped in planned sessions; in addition, it assigns grades according to planned didactic and evaluative activities. Self-regulation is related to the degree to which the participant has an active role in their own learning, it is also related to cognition, metacognition, motivation, behavior and the context in which the participant develops.

The figure of the tutor is not necessary; However, there is the figure of the administrator of the careers, courses and modules to support the participants, mainly, in problems related to computer equipment and systems. An event is not scheduled with a defined time, but it is necessary to establish a maximum time to meet the training requirements, for reasons of efficient use of technological capacity.

The basis for virtual training is the instructional design model ADDIE (Analysis, Design, Development, Implementation, Evaluation):

- Needs analysis and response approach: its objective is to establish the requirements, demands and restrictions of an accessible virtual educational project, as well as its planning.

- Design of virtual training: this process is intended to establish the instructional design, the scripts to develop videos, podcasts, paragraphs and animations, among others, based on the curricular design prepared based on the needs analysis. In the event that for the virtual training project there is no elaborated curricular design, said design must be previously elaborated from the career, course or diploma based on the normal curricular processes.

- Development / production: the objective of the process is to generate the didactic elements of an accessible virtual educational project according to the scripts produced.

- Implementation: your objective is to install and activate educational resources in an accessible virtual training platform.

• Training development: during this process, learning is carried out using the educational resources implemented.

• Evaluation / optimization: it is a transversal process that includes all the activities necessary to carry out the evaluation and quality control of each of the previous processes involved. For each of the processes, the output elements (products) to be generated must be established in precise presentation formats and guidelines.

Some cases of success in cooperation projects that aim to contribute to the long-term development of countries, considering Information and Communication Technologies (ICT) in their implementation are the following:

• Since 2008, the Carlos Slim Foundation incorporated corporate social responsibility programs and actions focused on education, employment and economic development through its website, being a digital platform that offers free online training in different trades and technical activities. operations of the different productive sectors.

• The optimized system for the integral training of active learning is the application that the National Learning Service (SENA) has, being a virtual program that focuses on learning processes for apprentices from all over the world. Through the platform, learning is managed in a personalized way, optimizing time according to the dedication and capacity of the participants.

• Fundación Telefónica operates under strategic lines of work with which it seeks to impact society through digital training, first promoting quality digital education as a means of social transformation, second, employability, promoting spaces for young people and adults, training in skills and competencies in accordance with the new reality in the labor market, a digital and online volunteering.

Needs analysis, response approach and virtual training design.

The needs analysis is the process by which the problematic situation that originates the need for a training service is identified and determined, it includes the definition of external input elements, such as types of virtual training service, stages, responsibilities and authorities; particular requirements of the target group and restrictions. The needs and expectations of the client or of the intervention process, the national and international legal and regulatory requirements to be taken into account for the response of the virtual training are also taken into account.

It is recommended that these actions be set out in a register specifying each of the stages / activities such as the review of the normative references, the preparation of the course, objectives, evaluation criteria, learning results, as well as the design and development of the contents. and the evaluation of virtual training.

The needs analysis and response approach must be based on achievable, real, precise and exact facts according to the objective and target group. It is important to fulfill each of the stages or activities contemplated. Also, take into account unforeseen situations or new actions that can be adjusted to the situation initially raised.

The design of virtual training is proposed as a systemic process with interrelated activities that allow the creation of training and learning environments that really facilitate, in a mediated way,

the processes of knowledge construction. Design is a pedagogical, didactic tool that seeks to support participants in the development of learning and teaching processes. It fulfills an informative function since it is a conducive medium for the transmission of knowledge and the conceptual bases for the development of abilities and skills, as well as for the contextualization and application of procedures.

They also have a representation function, which consists of encompassing textual content, graphics, images and figures that serve as support to achieve the expected learning results of the pedagogical-didactic process.

The objective of the design of the virtual training is to establish the instructional design, the scripts to develop videos, podcasts and animations, among other resources based on the curricular design developed based on the needs analysis. In the event that there is no curricular design prepared for the virtual training project, said design should be created from the normal curricular processes.

The purpose of the instructional design is to plan the training processes to make it possible to achieve the learning results through means and didactic resources. Instructional design also considers the production and implementation of resources of the virtual learning environment, thus completing the design processes as a whole.

The virtual training can be designed from an existing design or start a new design. If an existing design is taken, the learning outcomes approach is taken as a reference to determine the virtual units; the evaluation criteria to establish them as achievement criteria; The practical contents may serve as a reference to write the activities and the theoretical contents to propose the dosage of contents.

In the case of a new design, it will be designed with virtual drives and sessions in mind from the beginning. This will consist of focusing on a learning sequence that can be disaggregated with a process-based analysis; then, the achievement criteria, the content dosing, the activities and the virtual resources can already be proposed.

The instructional design is developed in a format respecting a structure and organization of the elements that make it up, this to facilitate its interpretation and serves as an input for the development of virtual resources. In addition, it includes information for planning and programming, as well as for hiring tutors at the institutional level.

Most of the virtual training designed at INTECAP has an estimated duration of 40 hours. Each design presents the capacity that will be acquired at the end of the training and is proposed according to the following structure: verb + object + condition, taking as reference the taxonomies of cognitive domain (Benjamin Bloom) and affective domain (David Krathwohl).

In addition, it is composed of a minimum of two virtual units, up to seven, which are proposed according to the design methodology of each institution, seeking to cover the learning cycle and issues related to resources for virtualization.

Each virtual unit is made up of a minimum of 2 sessions, up to a maximum of five, which will have the name of the topic to be discussed, which is closely related or must be linked to the main achievement criterion. The achievement criterion has an approach focused on the development of cognitive domain or affective domain capabilities.

The dosage of the contents varies according to the complexity or extent of the content to be developed. General, specific, procedural or attitudinal content can be proposed and must meet the achievement criteria.

The content to be developed seeks to stimulate the work of the actors in the process, allowing, especially, independent work and the permanent exercise of those who interact in the didactic process. To do this, it contains various activities designed for individual work. These activities appear during the development of virtual training and will meet criteria such as: relevance to each phase of the pedagogical-didactic process, development of comprehensive, critical and creative thinking, development of cognitive skills according to the levels of Bloom's Taxonomy and a correlation with the components of instructional design.

An important part in the design is the evaluation that constitutes a measurement instrument that serves for the participant to verify the level of learning acquired and as a consequence, the achievement of the objective of the virtual training.

It is proposed that for each virtual unit an evaluation is proposed, each one consists of a minimum of 5 items and a maximum of 10. The items will be constructed based on the analysis of the achievement criteria proposed in the instructional design. In order to lead the participants to problem solving and decision making, direct questions will be asked in which a single correct answer is expected. The items will be oriented to understanding and analyzing the contents of each virtual unit.

To prepare the evaluation, some aspects must be considered, such as: each question or statement must reflect a specific content and be based on an important point to learn, use common words and go according to the level of vocabulary of the participants, avoid leading questions that guide the participant towards a given answer and avoid a formulation almost identical to that of the content to avoid evaluating only the rote.

Development and production of virtual resources

The development / production of virtual resources aims to carry out the process of generating the didactic elements for an accessible virtual educational project according to the scripts produced.

In general terms, virtual resources are called all the content supports that are used in the teaching-learning processes through virtual means for distance training, which have been didactically processed, taking into account the specific needs that arise from training planning, its objectives, the characteristics of the participants and all those variables that emerge from the same process.

A virtual resource is an object that is used to assist learning, such as a file or a link. The different platforms support a wide range of virtual resources such as audios, videos, interactive material, among others, that tutors can add to the units of a certain course or specific subject. The portals for training either a MOOC (Massive Open Online Courses; in Spanish massive and open online courses) or an LMS (Learning Management System; in Spanish learning management system) admit various types of resources that can be used to favor the process of virtual training. Through dynamic, interactive and non-static resources.

The development and production of virtual resources is the central part of learning and they start from the instructional design, in all cases the targeting of achievement criteria and the definition of structured thematic scopes must be considered.

Guerreo and Flores (2009) comment that "likewise, the use of technological resources such as video games, the web and social spaces, in which didactic and recreational situations are combined, make learning easier and more attractive, favoring cognitive development, as well as vocabulary and literacy, among others (Yarto, 2001) ".

Among the most significant resources to use in training are: digital material for printing, gamification, podcasts, video presentations, infographics and live videos.

The digital material intended for printing contains didactic text that is intended to teach and has a training orientation. The structure implies recognizing the ideas of the text and organizing them within a clear structure that serves as a frame of reference to represent the content of the document, thus facilitating their learning. Present ideas in a more simplified, simple and clear way. It should be ensured that the contents of the text, equivalent to the topic or subtopic, range between 10 and 15 pages, considering that reading documents on screen tires.

A video presentation or a video is a compendium of recorded audiovisual resources, with a previously expressed didactic objective. For this virtual resource, the development of a technical script prior to recording is required. It will be necessary to carry out a detailed planning in relation to the time that will be dedicated to the use and visualization of the videos, trying that the period does not exceed 60% of the total of a class.

When selecting or when preparing a video as a complement to the contents of the virtual training, it is necessary to consider that it should range between 3 and 6 minutes maximum, although there may be exceptions that due to the process or if it has incorporated activities, it may exceed up to 8 minutes. But in itself, long-duration videos should be avoided, since people lose their concentration with videos of more than 5 minutes.

This format transforms the reading experience into listening to it. You can record the reading of a document to use it aurally (highly recommended use for people with visual disabilities). In the production of the podcast, the target audience must be considered, the content that is included must be closely related to the topic, synthesize and motivate their listening. For this, the speakers must be selected, considering the population, age, occupation and the context in which the target group operates. A good podcast should not exceed 10 minutes and should be based on a good script and not be reduced to a simple reading.

Another type of resource is infographics, which is a way of explaining a topic in a visual and synthetic way, that is, that with just a glance you can capture the concept, idea or topic you want to convey. Infographics use different tools, such as texts, images, and shapes. It has a didactic intention.

The structuring of ideas and scopes in the case of the contents, as well as the planning of the contents in the different types of scripts, represent the input for the production of the resources that will already be in charge of mediators, graphic designers and web designers , therefore, they should allow an easy interpretation of the requirement.

In the production of the different resources, the mediator, graphic designer and web designer have a primary role, since they must reveal so that the final presentation of the different resources allows them to be attracted to reading or their reproduction on the platform, In this sense, the participant has a pleasant experience when interacting with the different materials, taking care of institutional aspects and standards, as well as the specialty and context of occupational

development. It also takes care that rights are respected author, as well as gender equity, cultural valuation and national identity.

Implementation of platforms, development of training and evaluation and optimization of the training system

The implementation aims to install and activate educational resources in an accessible virtual training platform. The focus of this process is to create an accessible virtual environment that supports the integration, structuring and organization of the contents developed in such a way that they are accessible, proposing a mediating distribution that focuses the correct execution of the teaching-learning methodology determined for the target group.

In this sense, the virtual teaching-learning environment will be prepared to be the space proposed for the development of the training of the participants, making use of the interaction that is available with the contents formulated using the tools, resources, activities and sites indicated. for the process of communication and exchange of carefully selected and structured information. Therefore, it is essential to promote a constituted environment, strengthened by sociocultural interaction, where participants can have relevant experience with the acquisition of new knowledge, skills and values, based on the pedagogical model that supports it.

The implementation of the instructional design and its resources is focused on the integral execution of the process, taking care of holistic and dynamic aspects without neglecting to ensure the correct functioning of viable educational resources, in addition to automatically allowing the adaptation of virtual resources, taking care that accessibility is with different profiles and preferences of users.

It should be noted that during the implementation it is necessary to take into consideration the quality criteria, in such a way that they respond to the principles that comprise the aspects that must be estimated in the evaluation of virtual environments: in this sense, functionality, flexibility, interactivity, usability and accessibility.

Finally, the evaluation / optimization is carried out, which is a transversal process that includes all the activities necessary to carry out the evaluation and quality control of each of the previous processes involved. For each of these, the output elements (products) must be established to generate precise presentation formats and guidelines.

In this process, the viability, effectiveness and efficiency of the training actions carried out to respond to the proposed objectives are established. The scope of the evaluation will focus on the application of the inquiry techniques used to generate the data and the recommendations to implement the improvement plan for future editions.

It is a transversal process, which includes all the activities necessary to carry out the evaluation and control of the quality of each of the previous processes involved in a training process. This will imply a careful analysis of each of the basic processes of virtual training starting from the analysis of the needs, analysis of the framework, design, implementation and planning. In this process, the validation of the information collected should be taken care of, since the results of this analysis should serve throughout all the stages of the process to structure the

recommendations and lessons learned that help to carry out the necessary corrective actions and improve future implementations of the training process.

Optimization is about detecting possible problems or deficiencies and generating intervention strategies to solve them. For this, it is necessary to find elements for improvement and communicate them to the appropriate people who can implement actions at all levels, organizational, administrative, methodological, tutorial, and technical, among others.

4. CONCLUSIONS

• For the approach of a design of virtual training requires an analysis of the needs that are demanded based on real, precise and exact data according to the target group and the purpose of the training to respond to the requirements of the world of work.

• The instructional design must contemplate a structure and sequence of learning that considers the approach of all the pertinent elements for an intervention that allows a quality response and with the optimal operating results.

• Virtuality, turns out to be a resource and a means for distance professional training in the self-regulated or individualized modality where the participants, content, development of activities and evaluation are encouraged to interact with each other, so that the selection of means virtual is decisive for the effectiveness of l learning.

• The implementation in the learning platforms is another factor to consider because, depending on its efficiency and stability, this is how the learning experience will take place in the participant, therefore, at a strategic level it is necessary to consider the assessment that The target population would have to have institutional platforms that are flexible and efficient, thereby increasing the traffic of training places and therefore its profitability.

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