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MANUAL for trainers

FROM LITERACY TO
DIGITAL AND TECHNOLOGICAL
TRAINING

This is one of the educational materials published by the **Virtual Inclusive Education** platform, developed by REDTREE MAKING PROJECTS in collaboration with IKASIA TECHNOLOGIES S.L., the NATIONAL TECHNICAL UNIVERSITY OF ATHENS (NTUA), UNIVERSIDADE DO MINHO, NANOPAINT LDA., and GRETA DU VELAY, within the project “**FROM LITERACY TO DIGITAL AND TECHNOLOGICAL TRAINING: INNOVATIVE AND CUSTOMIZABLE TRAINING ITINERARY TO FACILITATE THE EMPLOYABILITY AND INCLUSION OF ADULT PERSONS**”, co-funded by the **ERASMUS PLUS PROGRAMME** of the EUROPEAN UNION.



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MANUAL FOR TRAINERS IN THE TECHNOLOGY SECTOR

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EDUCATION in December 2021.

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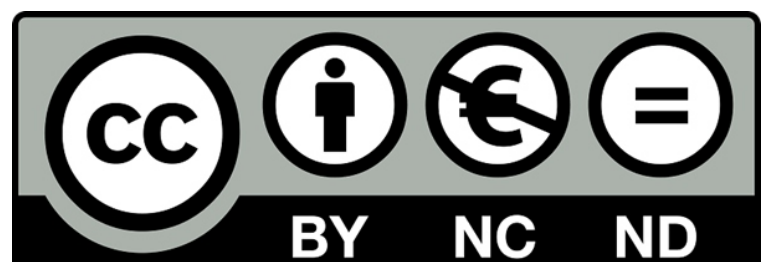


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1

INTRODUCTION



1. INTRODUCTION

What is learning? Despite the different theories about this concept, defining it seems to be a simple task, but a first distinction must be made to understand its purpose: knowing about something isn't the same as knowing how to do something.

Learning is understood as the process through which we acquire knowledge, skills, behaviors, and values, but knowledge does not have much value if it is not put into practice. Therefore, the ultimate goal of learning is to modify the behavior of a student so they do things differently, better than before. The reality, however, seems to be quite far from this; traditional learning processes have serious deficiencies, and a large part of these go through the applied methodologies and the role that teachers and professors sometimes play within a system that measures results (with exams and grades) more than the learning process itself.

Technology is a great accelerator of processes and models when they work properly; the issue is that adding technology to a poor model not only does not improve it, but it makes it worse. Therefore, in this case it is not so much about the area in which the learning takes place, but about how the methodology and the training process are adapted, and consequently the role played by the teacher and the functions addressed by the tutor, whether in on-site, online, or blended learning.



2

OBJECTIVES



2. OBJECTIVES

This **Manual for Trainers** is intended as a support tool for instructors or teachers of adults who will teach training activities to adapt the “STRUCTURED AND PERSONALIZED COURSE FOR THE DIGITAL LEARNING OF ADULTS: FROM LITERACY TO DIGITAL AND TECHNOLOGICAL TRAINING” (O1) to the different learning contexts: on-site, blended, and distance learning.

In any of the modalities, the performance of the trainer is paramount for students to achieve the established objectives. This manual has been designed with the objective of guiding and training trainers to structure and carry out a training program applying the methodology proposed for the learning process. It will also allow them to use the materials and methodologies designed in this course to implement them in their adult training centers.

This manual is available in English and Spanish.

3

EDUCATIONAL METHODOLOGY



3.1 METHODOLOGICAL BASES

The course “FROM LITERACY TO DIGITAL AND TECHNOLOGICAL TRAINING” starts from the basis and the conviction that, nowadays, **the function of training is not so much to teach a series of knowledge related to certain subjects and fields, but rather in teaching to learn**, promoting in all those interested the acquisition of a certain degree of intellectual autonomy. It is not just about acquiring certain cognitive skills in addition to the logical assumption of knowledge and skills, but rather to not limit ourselves to receiving said knowledge and also participate in its construction during the development of the learning process.

To do this, we work on some comprehensive, dynamic, and flexible methodological bases that are in continuous construction, focused on the innovation and personalization of learning processes. With the objective of promoting the inclusion of all students, we develop critical



thinking and the competence of learning to learn through collaborative practical learning among equals, taking the needs and prior knowledge of each student into consideration as the pedagogical basis of the course.

3.2 THE MIRCO-ELEARNING METHODOLOGY

This break in the paradigms and approaches of traditional education, which creates new solutions more in line with the current moment and allows improving learning processes is - among other things- what the e-Learning methodology provides: **a virtual, flexible educational methodology, adapted to the needs of the student**, which combines a multitude of interactive tools to make it easier for the student to access all the training material through digital devices like their PC, tablet, or smartphone, and to do so from anywhere.

But the course uses this e-Learning methodology with an innovative learning modality or perspective aimed at fragmenting the didactic contents through which the skills are acquired: this is what we know as micro-eLearning. In it, the learning is generated through small steps (pills) that,

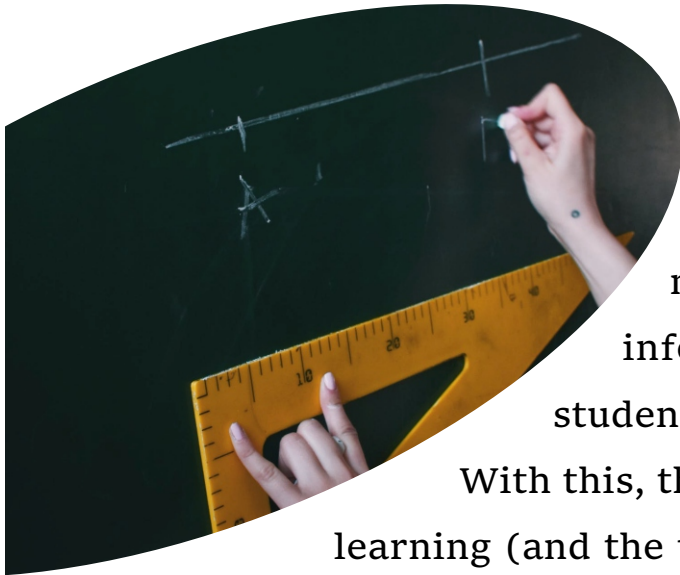
when interconnected, form a broader and deeper knowledge in the long term. This is a form of learning that can be carried out in a short time, and at any time and place.

We use a long series of examples that approximate situations that can happen in the personal, social, or work environment, about which the student must think, seek information, face problems, and make decisions. We mainly intend to induce reflection on the way in which one comes to take positions on certain cases and evaluates their own thinking, the sources of information, and the chain of reasoning that they have carried out.

3.3 PBL - PROBLEM-BASED LEARNING

As in real work, many of the problems do not have a single solution, and the contrast and discussion with other participants of the course or with its tutors can be extraordinarily enriching for the training and the objectives of the course. This is why we propose problem-based learning (PBL) for the training process envisaged in the project: an innovative teaching method in which complex real-world problems are used as a vehicle to promote the learning of

concepts and principles by students, rather than the direct presentation of facts and concepts.



This is a system with an inverse structure to the traditional one: first the problem is presented, then the needs are identified, then the required information is sought, and finally the student returns to the problem to solve it.

With this, the students become the protagonists of learning (and the teachers become their guides), using a procedure similar to what is common in the professional and/or work environment.

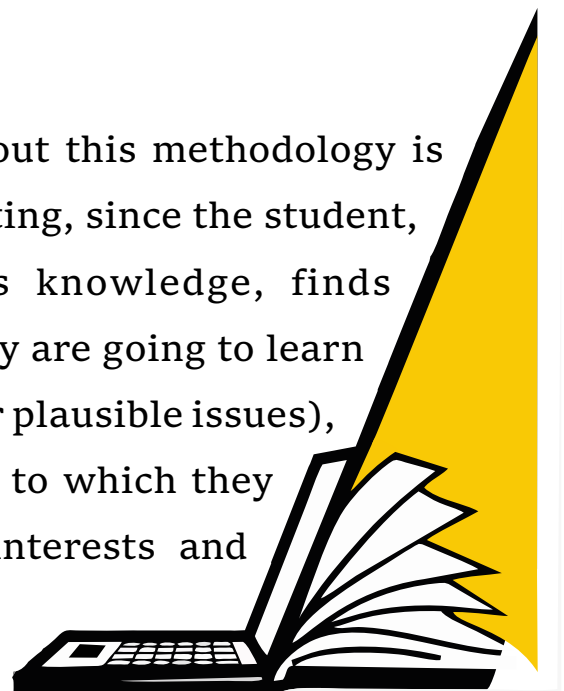
In this project, we call each of these cases or problems “**pills**”. These begin with a statement or approach in which the student is placed before a scenario that requires them to make a decision or take a position, which exposes a state of the matter. The resolution of the question, case, or scenario must be expressed clearly, often by filling in tables, relating concepts, writing a few lines, and in some cases by drafting a more extensive document or file.

If the student requires some assistance to advance in the understanding of the case or problem raised and in the drafting and evaluation of their answer, they can resort to

different pieces of additional information (“**Helps**”) that appear when requested. We suggest not resorting to them right from the beginning, since the development of one's own reasoning is the most part of training, much more than knowing the correct answer (besides, as mentioned before, in many cases there will not be a “correct answer”, but rather an opinion or a position).

At the end of each pill there are some comments that we have called “**Final Remarks**”, which are sometimes the solution to the problem, and others just simple indications to broaden the knowledge on the subject of the exercise, if there is interest.

What is really interesting about this methodology is that it can be especially motivating, since the student, starting from their previous knowledge, finds meaning and utility in what they are going to learn (the pills deal with facing real or plausible issues), and they can regulate the level to which they want to delve based on the interests and abilities of the students.



4

LEARNING SPACES



4.1 PREVIOUS CONSIDERATIONS

The Organization for Economic Co-operation and Development (OECD) has the Learning Environment Evaluation Program (LEEP), built on the work of its Center for Effective Learning Environments (CELE), through which educational center directors, researchers, and policy makers are offered a network with access to more detailed information on learning environments. The work carried out by the OECD (2006) has been the one closest to providing a **concrete definition of what we know as learning environments**: “those physical spaces that host several pedagogies and teaching and learning programs, including current technologies; spaces with optimal and profitable performance and operation over time; that respect and are in harmony with the environment; and that encourage social participation, providing a healthy, comfortable, safe, protected, and stimulating environment for their users. In the strictest sense, a physical learning environment is considered to be a traditional classroom, and in the broadest sense, a combination of formal and informal educational systems in which learning takes place both inside and outside of the educational centers.” (Manninen et al., 2007).

At a global level, there is an increasing interest in projects that have to do with the development and use of learning spaces. Although it is not a new topic as such, it is being rethought again due to the increasing access and reliability of available technologies. Discussions about adapting learning spaces must increasingly take into account issues around the changing role of learners, who now have access to personal digital devices inside and outside the classroom, and who can access resources and create innovative, professional, and easy-to-share productions.



4.2 DO SPACES INFLUENCE LEARNING? PEDAGOGICAL REPERCUSSIONS

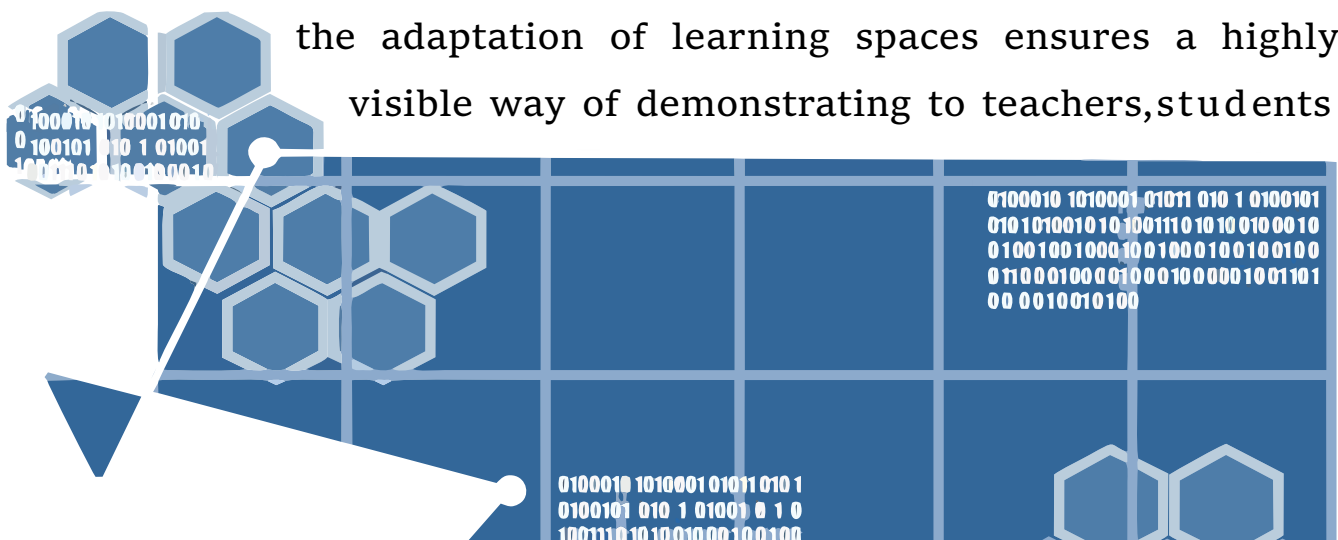
Schools are increasingly recognizing that **the traditional classroom** with teachers in the front and students facing them throughout the lesson **does not encourage innovative teaching approaches**. Policy makers, teachers, and researchers have admitted that the opportunity to work in groups, to undertake projects, and to collaborate with others beyond the classroom poses a challenge to traditional ways of teaching and learning.

Diana Oblinger (2006) states that “Spaces themselves are agents of change. Changing the spaces will change the practice”. She points out that the spaces designed a few decades ago do not reflect the needs of today's students, that **it is necessary to address the role of technology in “connecting students”**. There is an even greater possibility of doing that in today's learning environments, and learners expect to make possible a continuous connection to the world beyond the classroom.

Students have more and more access to their own technological devices, both inside and outside the classroom, and their expectations about how to learn have also changed, but the school environment has not changed at the same rate. Teachers recognize that students want to use technology and are excited to express their creativity, and students can be assessed in new ways as well; they can access digital resources and create professional-quality presentations, but this remains a challenge, as traditional summative evaluation is still present in the curriculum, and **exams still carry a lot of weight.**

Communication inside and outside the classroom has become immediate, spontaneous, and global. There is a broad consensus that schools want to demonstrate that they continually take into account the changing needs of students in order to improve teaching and learning at school, and that

the adaptation of learning spaces ensures a highly visible way of demonstrating to teachers, students



and parents that positive changes are being made.

In addition, it is necessary to recognize that learning also occurs “outside the formal education system”, and this in itself has changed the nature and the concept of the usefulness of educational centers. For 21st century pedagogies, like Inverted Learning, Collaborative Learning, and Project-Based Learning or problem-solving based scenarios, changes to the classroom distribution were required to allow for movement and flexibility. Increasingly, teachers and students say that **technology gives them the freedom to decide where and how to learn**, and what is even more important, it motivates students to create productions that reflect their particular understanding of the learning outcomes.



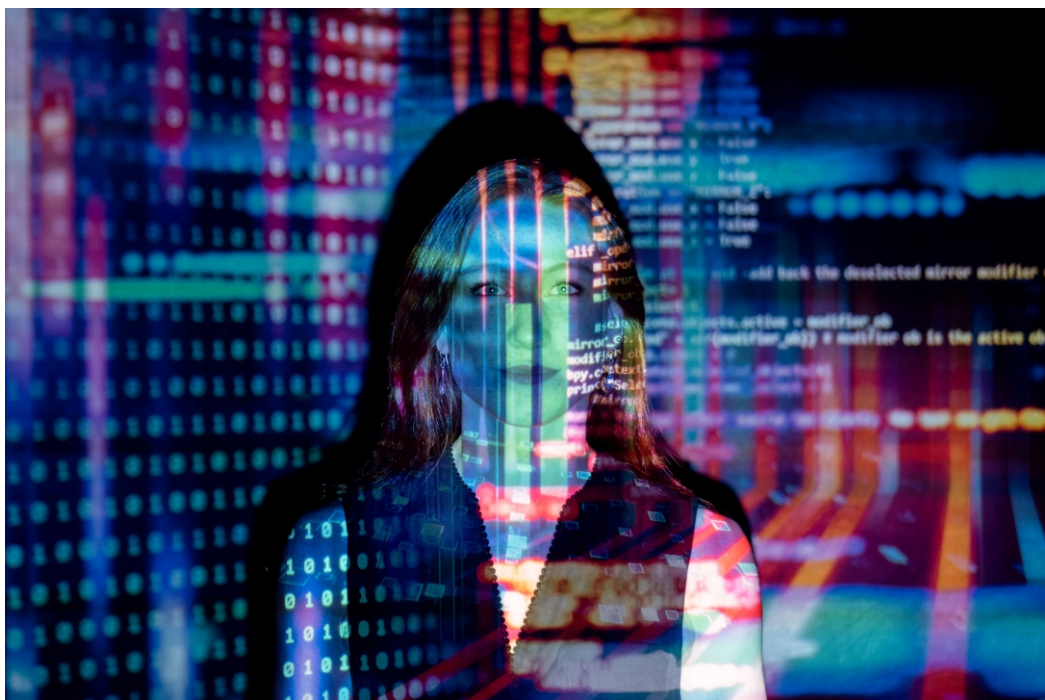
4.3 THE LEARNING SPACES OF THE FUTURE

Kuuskorpi and González (2011) state that “the basic structure of teaching spaces does not seem to have evolved much over the past century”. Technology is spreading through 21st century learning environments, but the reality is that **the innovative use of technology in the classroom remains fragmented and uneven**. 21st century pedagogy has led to an analysis of those schools that provide various types of mobile devices and those that allow students to bring their own devices. However, it has become clear that one of the biggest challenges for students today is the access regularity.

It is clear that students can change the direction of learning more easily by interacting with existing technology in the classroom or by bringing their own device; this is due to the fact that individual access provides possibilities for immediate participation, and they can be involved in different tasks. At the Future Classroom Lab (FCL) in Brussels, created in 2012 by European SchoolNet (EUN), 34 education ministries and several industry partners gave their support to help visualize how conventional classrooms and

other learning spaces can be reorganized to drive changing styles of teaching and learning. **The FCL aims to be an inspiring learning environment, challenging visitors to rethink the role of pedagogy, technology, and design in its classrooms.**

Although the vast majority of educational systems at a European level have begun the implementation of the Classrooms of the Future as spaces to improve teaching-learning processes in combination with technology and through active methodologies, the reality is that **in Europe there are still very few examples of schools where students can use technology throughout the day with all teachers to support their learning.** This is very difficult to



achieve when not all classrooms in a school have the same technological equipment, and it becomes even more of a challenge when teachers cannot make use of the available technology.

Teachers spend a lot of time encouraging students to work together, expecting them to use technology to find answers and come up with new ideas, but at the same time **they require them to demonstrate their knowledge while sitting in rows doing summative exams in isolation.** This is why, for this transformation to happen, changes must be introduced not only to the use and educational integration of ICTs, but also to the methodologies applied in the classroom and to the layout and setting of the educational spaces of the school; the essential trinomial for the digital transformation of schools and the modernization of teaching and learning in the 21st century: **pedagogy + technology + inspiring educational spaces.**



5

ONLINE TRAINING COURSE



5.1 THE TEACHER AS A TUTOR OF THE LEARNING PROCESS

The course “**FROM LITERACY TO DIGITAL AND TECHNOLOGICAL TRAINING**” that we offer in this project is designed and structured to be studied digitally. It is fully compatible with the curriculum of adult education, and its innovation stands out due to its very conception, which seeks to generate an impact among the adult population between 18 and 30 years old who left the educational system and have not been able to access the labor market.

In the recent training contexts based on new information and communication technologies (ICTs), such as virtual learning environments, the academic profile -but also teaching skills, functions, and actions- redefine the role of the teacher within these virtual environments.

From this point of view, **there are changes in the roles of the teacher**, who goes from being the main source of information, transmitter of knowledge, expert in content and resources, and the figure that controls and directs all aspects of learning for the student -characteristics of the traditional

teaching structure-; to that of a guide, collaborator, trainer, and evaluator of learning processes, **a teacher focused on channeling and promoting the autonomous learning of their students and guiding the quality of the processes involved in it.** In this scenario, the teacher allows the student to be more responsible and autonomous in their own learning.

In this regard, for Gisbert, Cabero, and Llorente (2007), “the roles to be played by the teacher in technological environments” are summarized into:

- Information consultant/ learning facilitator.
- Designer of mediated learning situations.
- Moderator and virtual tutor.
- Continuous evaluator.
- Counselor.



In this same sense, Marcelo (2005) points out three areas as “those most desirable to be developed by any virtual trainer: technological, didactic, and tutorial”.

Therefore, and according to the above, when carrying out this course in virtual environments, the teacher must have skills to manage and use all those technological resources for the design and development of distance training from a technical point of view, must acquire knowledge that contributes to the strengthening of the virtual training process (design, production, and evaluation of virtual



teaching and learning environments), and must have knowledge in tutoring, that is, being a mediator between students and contents.

e-learning platform

Thus, from the project “FROM LITERACY TO DIGITAL AND TECHNOLOGICAL TRAINING”, we offer the possibility of taking the course in an already created virtual environment that incorporates the indicated tools and resources: the **Virtual Inclusive Education e-Learning platform**; an intelligent, digital, and telematic platform with a system capable of defining the user's profile (previous knowledge, strengths and weaknesses in their education...) and creating personalized learning strategies based on that. Through the specific ICTs that configure digital processes, our working

methods are based on a triple conception of learning adapted to virtual education: active, collaborative, and autonomous.

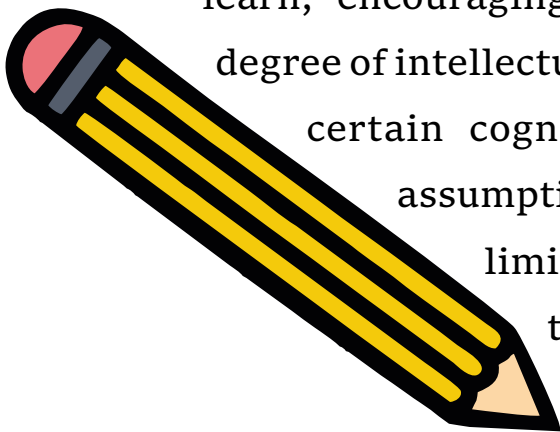
This platform makes digital tools available to users, allowing for a synchronous and asynchronous virtual learning in which the user can have real-time conversations with tutors and classmates and send them messages and files for their evaluation. In this way, **we promote a collaborative learning that generates networks between very different people**, allowing users to be offered new paths for inclusion and making it easier for them to successfully complete the proposed educational processes.

Lastly, you must keep in mind that the role played by the teacher as teacher-tutor will be essential to guarantee the quality and effectiveness of the training process carried out through the technological environments. We address this matter in greater detail in section 5.4 of this guide.



5.2 METHODOLOGY OF THE COURSE

As we have said, we come from the fact that the objective of training is not so much to teach a series of knowledge related to certain subjects and fields, but rather to teach how to learn, encouraging those interested to acquire a certain degree of intellectual autonomy. It is not just about acquiring certain cognitive skills, in addition to the logical assumption of knowledge and skills, but to not limit ourselves to receiving that knowledge in the development of the learning process and also participate in its construction.



The e-Learning methodology provides this break in the paradigms and approaches of traditional education, creating new solutions adapted to the current times and allowing the improvement of the learning processes. In other words, **it combines the use of new multimedia and internet technologies to improve the quality of learning**, thus facilitating the access to resources and services, and distance exchanges and collaboration through digital platforms.

This type of learning also allows meeting the needs of the student by creating structured and individualized training

itineraries: **through a self-assessment test**, students indicate those areas in which they need help, those that spark their interest, or those that they have already mastered based on their previous knowledge. With this, **a selection of contents** (areas of knowledge and level of difficulty) of the individual course **is formed, tailored to each person**. Thus, the student becomes the true protagonist of his or her own learning process from the beginning, achieving skills that will bring them added benefits to face the challenges and circumstances of their life.



On a day-to-day basis, both in personal and social situations and in work, new issues continually appear to which one has to react by making decisions. Sometimes it is a problem to solve, others it is about analyzing a new idea that comes up, maybe it is the commissioning, management, or execution of a specific need, and others a procedure or process to be carried out through digital means.

It is more than likely that coping with these new situations requires you to learn new concepts, techniques, or tools, and so to contribute to the acquisition of these skills, attitudes, and knowledge, this course uses -through e-Learning education- an innovative modality or perspective of learning aimed at the fragmentation of the didactic contents by means of which the certain competences are acquired. This is what we know as **micro-eLearning: learning is generated in small steps (pills) that, when interconnected, form a broader and deeper knowledge in the long term.** It is characterized by being a form of learning that can be carried out in a short time, and at any time and place.

In this course, we use a long series of examples that approximate situations that could occur in the personal, social, or work environment on which to reflect, seek information, face a problem, and make decisions. Above all,

we intend to induce a reflection on how one comes to take a position on each case and evaluate one's own thinking, sources of information, and the chain of reasoning one has developed. As in a real job, **many of the problems do not have one single solution**, and the contrast and discussion of your results with other participants or with the tutors can be extraordinarily rich for your training and the objectives of the course.

BU4: Pill 4 – Protocol to measure the density of a liquid using a pycnometer.

Density is the quotient between the mass of a body and the volume it occupies; to measure the density of a liquid, it is necessary to precisely determine these two values. To do this, we use pycnometers (like the one in the picture), glass containers -usually small- with an extraordinarily narrow neck called "capillary". As it would be very difficult to fill the container with the liquid through this neck, it can be assembled and disassembled thanks to a ground fit that fits perfectly.



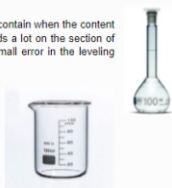
To use the pycnometer, the neck is removed, the main body is filled with liquid to the top, and when the neck is placed again, the liquid rises through the capillary and overflows, drying on the outside and becoming completely full. The difference between the weight of the full and empty pycnometer allows us to precisely know the mass of the liquid inside. To precisely measure the volume (the value written on the glass is only indicative) you have to do a test with a liquid of which you know its exact density, for example distilled water. Thus, the only thing we need is a precision balance, and depending on the balance we can measure the density with an accuracy of up to 0,001 g/cm³.

Could you explain why the pycnometer has this particular design? Write a protocol indicating the step-by-step operations to be done to measure the density of a liquid.

Help 1

There are different containers with engraved marks that indicate the volume of liquid they contain when the content is made up to the mark with that mark. The error that occurs in the measurement depends a lot on the section of the mouth of the container: a beaker is not suitable for measuring volume because a small error in the leveling means a large error in the volume.

For this reason, volumetric flasks or calibrated pipettes are used to measure specific volumes of the liquid. The volumetric flask has a narrow neck; the error in the leveling translates into a small error in the volume. The pycnometer increases the precision even more with a neck in the shape of a capillary of approximately half a millimeter in diameter.



Each pill (case) begins with a statement or approach with which the student is placed before a scenario that requires them to make a decision or take a position, which exposes a state of the matter. The resolution of the case must be expressed clearly, often through filling in tables, relating concepts, writing a few lines, and in some cases by drafting a more extensive document or file.

If the student requires help to advance in the understanding of the case or problem raised and in the elaboration and evaluation of the answer, **they can resort to different pieces of additional information (“Helps”)** that appear when requested. We suggest not resorting to them from the start

beginning, since the development of one's own reasoning is the most important part of this learning, much more than knowing a correct answer (besides, as mentioned before, in many cases there will not be “a correct answer”, but rather an opinion or a position statement).

Q Help 1

Q Help 2

The protocol must indicate all the operations to be done to conduct the test, and most importantly, it is not only for yourself, it must be written so that other persons can understand it. Put yourself in place of someone who is not aware of these measures and who reads your protocol; will they understand? Things that you have done many times seem obvious to you, and perhaps you will not write them, yet the person who does the essay for the first time cannot know them.

Q Help 3

Don't limit yourself to writing the operations to carry out, but explain minimally why they are done. This helps a lot to avoid misunderstandings and mistakes.

Q Final Remarks

At the end of each pill there are some comments that we have called “**Final Remarks**”, which are sometimes the **solution to the problem, and others just indications** to broaden the knowledge on the subject of the exercise, if there is interest.

This methodology may seem complicated at first, but it is very easy to understand and follow as one goes through the first few pills. Each of them is grouped into different **Didactic Units (DUs)**, and these in turn grouped by areas of knowledge, but as you will see below, in many of them the contents could fit well into various sections, since we often

wanted to work on competences in an interrelated and transversal way.

In this sense, despite proposing a structure that, in addition to helping to clarify the contents of the text, is still coherent, **it is not necessary to go through the course from beginning to end in an orderly manner: you can skip forward or backward** to address the pills that you find most appealing or interesting. You will not find in this course long texts to study, not even for the general or specific contents of a specific area, but we will base ourselves on the existing and accessible information through digital means and on developing effective routines to find said information, understand it, elaborate it, and draw conclusions from it.

Lastly, the methodology proposed for the learning process through **the e-Learning platform also includes an automatic direct evaluation system at the end of the course through a personalized survey** according to the chosen content itinerary, and a two-way accreditation system: on the one hand, a personal certificate that accrediting the completion of each of the courses, specifically indicating the level and itinerary completed, endorsed by the project and its partner entities; and on the other, a series of digital badges -images or icons with integrated specific

information about the learning achieved- that can be validated by educational institutions and accreditation platforms. These badges not only safely and reliably certify the knowledge acquired for the workplace and education, but also the specific skills that the user has learned. They are also compatible with the Europass European Curriculum system, allowing you to reinforce your curriculum, and with it, your opportunities for employment.

5.3 MECHANISMS FOR THE CONTENTS OF THE COURSE

This course proposes the creation of an itinerary adaptable to the user's initial situation, determining the contents and levels based on his/her previous knowledge and skills through an e-Learning platform. This allows them to receive comprehensive training (if required), starting from initial literacy and leading to developing the digital and technological skills necessary to access certain jobs in the technology sector; all this through **an education based on scientific thinking and critical analysis.**

The course has many exercises, and we are going to try to select for you those that suit you best, in an automated way, according to your answers to a simple survey. In any case, you can always check with your tutor at any time if you think that they are not enough in some field, if there is a topic in which you are particularly interested and you want to expand on, or if you consider that you lack knowledge in a given area. In the survey, you will have to answer each question with a number between 1 and 4 according to the following classification:

Nunca he estudiado esto. No sabría por dónde empezar.	1
Recuerdo haber estudiado cosas similares, pero no sé cómo abordarlo.	2
Tengo que repasarlo pero lo sabré hacer.	3
Sí que sé hacerlo/lo conozco.	4

5.4 MECHANISMS FOR THE EVALUATION OF THE LEARNING

The evaluation of the course is part of the student's educational process and will assess both the learning results and development to verify their evolution and detect any difficulties, adopt necessary measures, and continue the teaching - learning process. **This course has two complementary evaluation systems:**

a) On the one hand, **a self-evaluation at the end of each Didactic Unit** through self-analysis by the student of the skills they have developed and their ability to adequately solve the pills included in each DU. In other words, **nobody is going to evaluate you except yourself**, you have to be honest, that is what will help you improve your training.

b) On the other, **a direct evaluation at the end of the course through a personalized survey** and according to the chosen content itinerary (level 1, 2, or 3). For this survey, the student must have downloaded all the contents of each DU, and it must be completed in no more than 1 hour.

The direct evaluation will be carried out automatically by the e-Learning platform and the grades will be expressed in the following terms: **Poor (less than 5), Adequate (5), Good (6), Remarkable (7 or 8), and Outstanding (9 or 10)**. If necessary, the tutor coordinating the course, from the entity REDTREE MAKING PROJECTS, may also highlight the most relevant aspects of the teaching-learning process, the agreements reached, and the decisions adopted.

If the student does not pass the test, the platform will show the percentage of wrong answers. In order to take the test again, you must wait at least a week, time that should be used to review the topics related to the questions failed in the test.

6

HOW TO ADAPT THE COURSE TO THE ON-SITE LEARNING CONTEXT



6.1 THE TEACHER AS A TUTOR OF THE LEARNING PROCESS

The course developed in this project is initially designed and structured to be carried out digitally (online), but **the proposed methodology is fully applicable to any other training context** (blended or on-site).

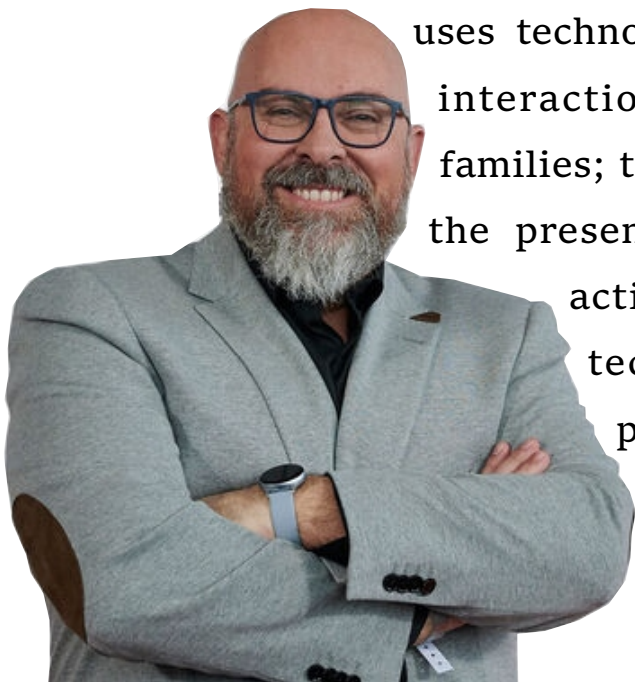
When the sender (teacher) and receiver (student) are physically in the same space and time (the classroom), there can exist feedback and self-regulation; **a teacher can know when their students have not understood a topic** (feedback), **and can rework it and express it in a different way** (self-regulation) so their students understand it, checking again the effect obtained (control). **This is what is most significant and valuable about on-site learning**, and not just because of the role of the teacher or the methodology developed in each context.

On-site education, therefore, is a learning process with not only an acquisition of knowledge, but also an experience of high-quality socialization and communication between different generations and different social and family profiles.

The teacher not only teaches their subject, but also guides the student throughout the learning process, which is a paramount role for their empathetic capacity, making the same message reach a totally different group of people.

In this sense, teaching is a situational activity in which it is necessary to keep an eye on changes and be able to respond also from **the complexity of a job that is constantly evolving**. The incorporation of ICTs in the classroom has contributed to an on-site experience enriched by technology, but which causes changes.

In the words of **professor F. Trujillo** from University of Granada, “There are four expansion plans for on-site learning promoted by technology: the communication plan, which uses technology to establish links and guarantee interaction between students, teachers, and families; the curricular plan, which includes both the presentation of contents and the learning activities to be carried out (for which technology is used, especially in the promotion of active approaches to teaching and learning); the evaluator, who uses technological resources to promote an alternative evaluation to the



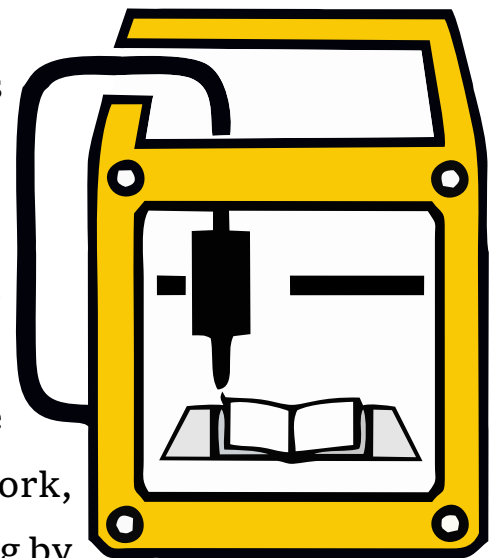
written exam, more in line with the type of activities proposed in the previous plan; and lastly a facilitation plan, which puts technology at the service of learning for all students to ensure that everyone learns with proposals, such as the universal learning design or differentiated training”.

All these plans have a specific impact on the role to be developed by the tutor. Regardless of the modality of the educational process, the teacher has always been the official bearer of knowledge, but as in online and blended contexts, **the role of trainers is changing: the tutor teacher ceases to be the source of knowledge to instead develop functions of guide, advisor, and facilitator** of resources and learning tools. Now it is mainly required **to help students learn to learn, and promote their cognitive and personal development through critical and applicative activities**, using the information and resources available.



6.2 GUIDELINES TO ADAPT THE METHODOLOGY OF THE COURSE

Just as the role of the teacher is undergoing a transformation, so is the methodology, and consequently the students. With the presence of ICTs in the classroom, we can work on an on-site methodology based on the participation of the students, teamwork, debates, and real case studies: “learning by doing”. In it, **students become active agents of the learning process**, creating autonomy in their study habits but working as a team. The student becomes the main agent and responsible for her own learning.



This course incorporates problem-based learning (PBL) so that students analyze and develop critical thinking. There are no long texts to study, not even for the general or specific contents of a specific area, but existing information accessible through digital means, to develop effective routines so the student can find said information, understand it, elaborate it, and arrive to conclusions from it.

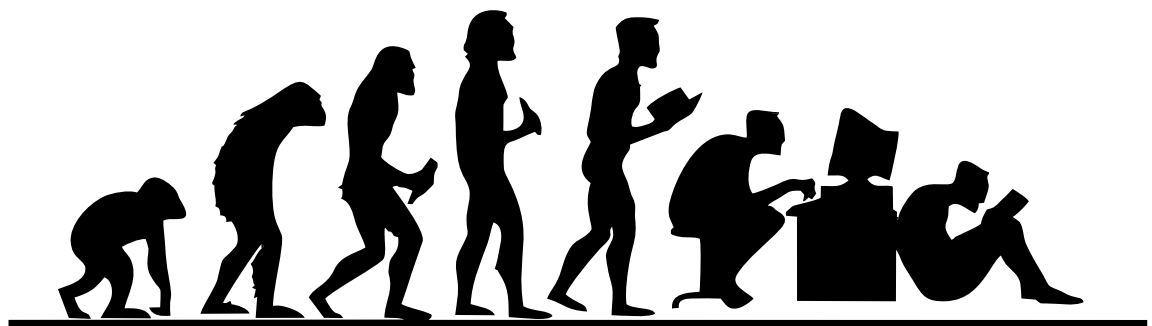
For this reason, **our adaptation proposal** to apply the methodology of the course to on-site learning consists of **having the teaching skills and ICT tools necessary to carry out the same methodology as in the virtual environment, but in the classroom.** In other words, instead of using a virtual environment, as teachers, we must place the student in a context, give them an explanation about each of the problems (pills), and open an autonomous and collaborative work space in the classroom, depending on each case to work, so they can solve it through the exercises. The next section talks about how to adapt the contents to achieve this proposal.

6.3 GUIDELINES TO ADAPT THE CONTENTS OF THE COURSE

As we detailed in the previous section of this manual, through the initial self-assessment survey, students can state in which areas they need help, those that spark their interest, or those that they have already mastered based on their previous knowledge. With this, we get information that allows us to make a selection of contents (areas of knowledge and level of difficulty) of the course for each person.

For an on-site context, **this preliminary analysis allows us to group the students within the classroom, and apply a structured learning process to each group through training itineraries that meet their needs.** The different learning pills are also grouped into different Didactic Units and by area of knowledge, although the competences are worked on in an interrelated and transversal way, so it is not necessary to go through the course from beginning to end in an orderly manner, that is, you can skip forward or backward to tackle the pills that are most appealing or interesting.

For this reason, **our proposal is to work on the different pills in such a way that balance is found** between the tasks of the teacher and the interest of the student.



6.4 GUIDELINES TO ADAPT THE EVALUATION OF THE LEARNING

Contrary to what happens with the virtual context, in on-site learning the evaluation of the students takes a more direct form, through tools, situations, resources, and procedures that allow us to obtain a more detailed and continuous information about the process, considering learning essential, and assessing it through observation, recording, and performance.

In this sense, and the same as in blended learning, our proposal for the on-site context is for evaluation to be taken as an assessment of academic evidence and learning progress with the final exam (which is one more continuous evaluation test), to verify that the student has acquired the skills that the course intended. We propose the application of **two complementary evaluation systems** matching the context and the methodology of the course:

- **On the one hand, a continuous and formative evaluation;** monitoring and proposing several evaluation procedures throughout the semester, at the end of each

Didactic Unit or area, of different weight, instead of allocating all weight to a final test.

- **On the other hand, using self-evaluation, co-evaluation and hetero-evaluation**, taking advantage of those moments to give personalized feedback as well. Not all feedback has to come from the teacher; feedback among the students themselves is a very valuable learning opportunity.



7

HOW TO ADAPT THE COURSE TO THE BLENDED LEARNING CONTEXT



7. HOW TO ADAPT THE COURSE TO THE BLENDED LEARNING CONTEXT

The blended learning context is understood as a teaching design in which **on-site (physical) and online (virtual) technologies are combined to optimize the learning process**. It focuses on learning processes, so the concept receives other names more focused on the action of the designer or teacher, such as “mixed learning”, “flexible education”, or “hybrid model”.

In order to carry out this learning, it is necessary to determine which part of a course must be carried out on-site and which one virtually; which can involve self-study and which must be tutored; which one is synchronous and which asynchronous; which role should the on-site facilitator have, and which one the virtual tutor. One has to study each case, simulations, exercises, and tutorials where individual activities and group activities are developed, where discussion forums are located that collect knowledge, but also generate it; therefore, it is convenient to have answers to the following questions: How do I organize knowledge? How do I design the learning or practice groups? What technology

and resources do I have at my disposal?

The blended learning modality allows to combine positive elements of the virtual modality with those of the on-site modality, but it is not enough just to incorporate these resources to obtain effective learning: it is necessary to use them depending on the pedagogical model adopted, which must be focused primarily on student activity.

In this section we will see some of the functions and guidelines that we can follow to respond to the adaptation of the course proposed in the project to the modality of blended learning.

7.1 THE TEACHER AS A TUTOR OF THE LEARNING PROCESS

Alemanya (2007) states that in the mixed teaching model, the trainer assumes a traditional role, but uses all the possibilities offered by the web service platform in which the educational environment is hosted, exercising thus its work on two fronts: publishing announcements, attending distance tutoring, and assisting students as traditional educator through on-site courses. The way in which both strategies

combine will depends on the course itself, and **this is how on-site and online training gain in flexibility and possibilities by being together.**

As with a traditional on-site course, the teacher/tutor must carry out all kinds of actions aimed at good academic planning: define the objectives of the course, draft its thematic contents, draft didactic materials, select a methodology and its pedagogical approach, develop an evaluation plan, etc.

The tasks of the teacher in virtual education are not very different from those of an on-site course, but when in addition to on-site activity, ICTs are available to enable the teacher-student interaction, **the teacher must develop new additional skills:** knowledge and skills in handling ICTs (internet, emails, forums, chat, search for information...) in conditions that allow him/her to put into practice methodological strategies that stimulate the student participation and fluid and dynamic communication through synchronous or asynchronous means, good guidance, and the appropriate use of techniques that promote collaborative group work.



7.2 GUIDELINES TO ADAPT THE METHODOLOGY OF THE COURSE

This mixed learning involves answering, as we said at the beginning of this section, some questions related to: How do I organize knowledge? How do I design the learning or practice groups? What technologies and resources do I have at my disposal?

The course “FROM LITERACY TO DIGITAL AND TECHNOLOGICAL TRAINING” developed in this project is designed to be carried out digitally, so **all activities can be carried out online, both individually and in groups**, either for practical cases, previous knowledge activities, exercises with application in daily life, debates, etc. Therefore, the criteria for defining one or the other will depend on the objective to be achieved in each classroom and the possibilities of interaction (synchronous/asynchronous) in each situation.

Micro-eLearning as a method for structuring learning, combined with the virtual platform where the course is hosted (Virtual Inclusive Education) makes it possible to combine the contents for a blended learning. **Our adaptation**

proposal consists of dividing the course into practical contents and theoretical contents, so that these in turn define the synchronous and asynchronous instances. Thus, in the classroom and in person, the introductory and contextual contents for the specific level and area of learning would be addressed, and virtually through the platform (or other tools proposed by the tutor), either individually or with group learning, the learning pills that make up the Didactic Units are carried out, to later be discussed again in the classroom, on-site.

However, **this proposal will not always adapt to all situations where it can be used**, so we point out some keys that can be used to plan said adaptation of the methodology:

- Instead of designing on-site instances on the one hand, and virtual (distance) instances on the other, **think of all activities and contents as a continuum**; in this

way, it will be easier to carry out virtual activities when convenient, promoting flexibility.

- It is students who must appropriate the learning; designing the structure of the course based on this perspective will help to create and organize the learning activities with the student at the center of the learning.



7.3 GUIDELINES TO ADAPT THE MATERIALS OF THE COURSE

ICTs must be used to ensure that the teaching-learning process can achieve a transformation in students, and that this results in the development of their own skills: learning to learn, either as part of self-learning or as part of the leadership used by teachers in the on-site classroom, which is equally important when teaching virtually.

The great flexibility of digital and technological means allows the teacher to combine and apply different methodologies, such as the virtual-on-site learning model, which results in the development of the acquisition of specific skills for the autonomous learning of the student, who is capable of select and use appropriate learning strategies, know how to manage self-access or monitor their own learning, know how to understand what is being taught, and formulate their own conclusions about it, since the accompaniment and guidance of the teacher helps in their learning.

The student's activity is one of the most important aspects, their role, skills, motivation, attitudes, and above all their learning strategies, but **it is the responsibility of teachers**

teacher to design teaching situations that allow the student both access to the specific knowledge of the disciplines, and to the development of strategies that allow them to build and reconstruct knowledge autonomously.

This time, the situations that the student is going to face are already designed in the learning pills in the course, so if we follow the proposed structure for adaptation to the mixed context, **we just have to adapt the material corresponding to on-site lessons**, meaning the introductory and contextual contents for the specific level and learning area. For this, and since the course does not have long texts or theory sections, we think that **the best guideline is not to forget that the student must be the center of the teaching and learning process**, an active protagonist that applies the contents instead of a passive agent listening to lessons. It is therefore necessary to build the materials in a form and format that allow the creation of knowledge with others (social learning) in the on-site classroom by interacting with their classmates to solve problems associated with the contents available in the virtual environment.

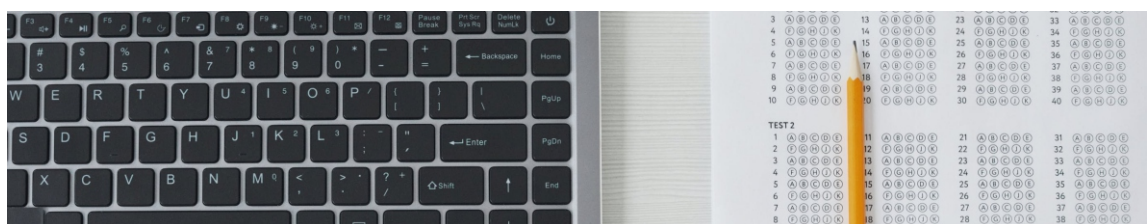
ICTs are a tool to support the learning process; having countless resources such as sound recordings, images, videos, mail, internal messaging, discussion forums, and all

kinds of multimedia content is a source of innovation and a creative tool that can help capture the attention of students.

7.4 GUIDELINES TO ADAPT THE EVALUATION OF THE LEARNING

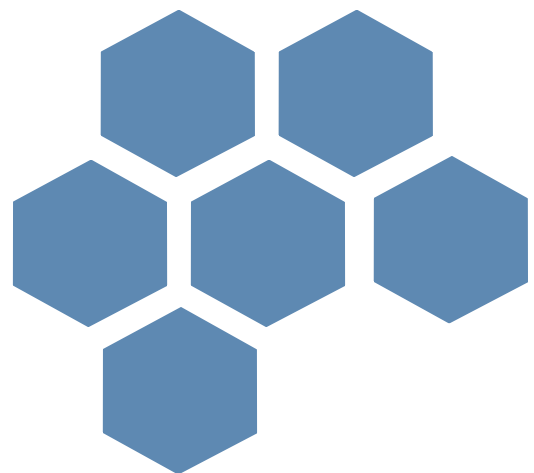
In the words of P. Acosta (2009), “The term *blended learning* appeared in 2002, and literally translates as mixed learning; that is to say, this modality intends to use two strategies -on-site and virtual- and therefore select the best of each of them”. **The main objective of this modality is to combine the advantages of online teaching (flexibility, access to resources...) with those of on-site teaching (proximity).**

In the evaluation process (the analysis and assessment of the academic evidence and the learning progress), the final exam is really one more test of continuous evaluation with the ultimate goal of being able to verify that the student has acquired the skills that the course intended.



Therefore, unlike the e-Learning modality for this course, in the blended learning modality, and considering the definition with which this section is headed, our proposal is:

- **On the one hand, a continuous and formative evaluation;** monitor and propose several evaluation procedures throughout the semester, at the end of each Didactic Unit or Area, with different weight instead of centralizing it in the final test.
- **On the other hand, using self-evaluation, co-evaluation, and hetero-evaluation;** taking advantage of them to give personalized feedback as well, which should not come only from the teacher: **feedback among the students themselves is a very valuable learning opportunity.**



8

CONCLUSIONS



8. CONCLUSIONS

By way of conclusion, we can say that **with the introduction of new technologies in teaching there has been a break in the classical paradigms** that guided the learning processes in all senses. At the same time, these changes are necessary to improve learning processes in all areas, and especially when we talk about adult education.

There are different training modalities to reach all people and their different realities: in this manual we have seen on-site, e-Learning (online or distance), and blended or mixed. To choose the learning strategy to use, **one must be aware of the training styles and contexts**, so that in any of them it is possible to promote autonomous learning and that this is not only limited to time in the classroom or to the contents collected in virtual environments; **we must be able to awaken the desire to learn in our students.**

We teachers must have a different role, more important than the one we have played until now, because the information and knowledge that we used to transmit is now

available in many different formats. Instead of being locked in a classroom, **we must participate in the design of activities and simulations**, in using platforms, authoring tools, in tutoring, monitoring and evaluation of students, in the selection of content, in the design of itineraries training, in knowledge management, and in the formation of collaborative work teams.

We must accept that, indeed, the students know more than us in some things, and therefore sometimes the roles are exchanged, allowing for an unbeatable opportunity to learn.

In short, we must understand that **this is about teaching people to think**, and that for this we have to present them with objectives, make their expectations fail, help them understand why, and provide them with tools to correct their theory and learn through their practice.

At the end of the course, a student will have succeeded (and therefore we as tutors too) if they have learned to DO (performance) and not only to KNOW (information), without losing sight of what they need and



what they are interested in. With this, we will be able to revalue the essential social role of teachers, and in turn **we will have created motivation in the student and a frame of reference that allows them to regain self-confidence**, to facilitate their social and labor inclusion thanks to the skills acquired.



9

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9. BIBLIOGRAPHY

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To achieve its ambitious objectives, this project includes a series of diverse results -not only intellectual- of high quality, such as the O1: **“STRUCTURED AND PERSONALIZED COURSE FOR DIGITAL LEARNING FOR ADULT PEOPLE: FROM LITERACY TO DIGITAL AND TECHNOLOGICAL TRAINING”**, but also tangible and intangible ones. This manual will make it easier for teachers of adults to adapt the course (O1) to different learning contexts (on-site, blended, and distance), and will allow them to use the materials and methodologies proposed in the course to implement them in their own adult training centers.