



Ministry of Education - Guyana



In collaboration with the **OAS** and **ProFuturo FOUNDATION**

2020. CARICOM. ICT ROUTE: BASIC LEVEL

MODULE 3 – CHANGES IN DIDACTIC PROGRAMMING

Training Manual for Teachers of Riverine and Hinterland Region



MINISTRY OF EDUCATION
ELIMINATING LITERACY, MODERNIZING EDUCATION, STRENGTHENING TOLERANCE

ProFuturo

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Message form the Minister of Education



Dear Teachers

Across the world, the COVID 19 pandemic (Corona Virus) continues to cause undesirable disruption to the global education systems. Guyana, as you know, was not spared. As such, we implore you to keep engaging our nation's learners and we applaud those of you who have tried and continue to try. We heard your concerns when you told us you were uncertain about how to teach using different means, that you lacked confidence, and that you felt you were not equipped. This is our first response in partnership with the **OAS** and **ProFuturo Foundation**. This training will give you the much-needed knowledge and expose you to the tools you need to deliver education differently by being innovative and by using easily available technology.

We are aware that the cost of data is of great concern to you and we have remedied that by partnering with GTT and Digicel to zero rate the ProFuturo platform domain. This means that

when anyone accesses the training platform, data will not be consumed. If teachers have neither devices nor connectivity, we will arrange a suitable location and if teachers, as those in the hinterland and riverine areas, cannot access either, even with our help, we have arranged for part of the program to be done through these printed modules because we know that it is only a matter of time before you are able to access connectivity and devices. We will never leave you behind.

I encourage you to take this training offer with vigour so that you can be better prepared to do what you love: influence by teaching the next generations.

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KEY TERMS

1. **Bimodal curriculum:** An innovative methodology based on know-how and memorizing.
2. **Blog:** A website where daily publications can be posted.
3. **Digital citizenship competence:** Education we need as citizens of the knowledge and information society.
4. **Digital immigrants:** Those who have adapted to the new technologies, because they were not born in the digital age.
5. **Digital natives:** Those born in the digital age who have developed together with technology, mastering it naturally.
6. **Discussion forums:** Digital tools for discussing and debating topics in the form of comments, with a moderator to control them.
7. **Experimental learning:** The students learn by exploring, experimenting, creating, discovering, etc.
8. **Generic cognitive competence:** This means being able to differentiate useful information and create knowledge with it.
9. **Informational competence:** Knowledge, aptitudes and skills for working with information.
10. **Knowledge and information society:** A multi-cultural society with new values, skills and abilities which revolves around the new technologies.
11. **Multiple literacies:** Different languages through which information reaches us.
12. **Project-based learning:** This focuses on a task to be performed or a problem to be solved, thereby creating a challenge for the students, who will have to use their knowledge, skills and experience to resolve the above.
13. **Technological or computer competence:** This refers to the use and handling of technological tools.
14. **TPACK:** A pedagogical method which combines contents, forms of teaching and the tools to be used.
15. **Treasure hunt:** A digital tool whose purpose is to create activities for the selection and production of information.
16. **Webquest:** A digital tool whose purpose is the conducting of guided research.
17. **Wiki:** A collaborative website

Unit 1

Changes in didactic programming



Starting point

The new characteristics of society are influencing the classrooms.

- ✓ Will this influence the teacher's way of teaching?
- ✓ What should be changed?
- ✓ Is the didactic programming updated?

Knowing what digital competition is, and what its components are, will be essential.



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Objectives

- ✓ To analyse the **digital competence** of the student body and its components.
- ✓ To identify the **relationship between ICT** and the teachers, students and contents.
- ✓ To understand the aspects of the **didactic programming** to be modified and the **new role of the teacher**.
- ✓ To discover **new work methodologies**.



Contents outline

Teaching in the digital world



- ✓ New educational model

Changes in the didactic programming



- ✓ Informational competence.
- ✓ Technological or computer competence.
- ✓ Multiple literacies.
- ✓ Generic cognitive competence.
- ✓ Digital citizenship competence
- ✓ Relationship between ICT and teachers, students and contents.

Aprendizaje Basado en Proyectos



- ✓ Aspects to be modified
- ✓ New role of the teacher.
- ✓ Methodologies:
 - ✓ Bimodal Curriculum.
 - ✓ TPACK.
- ✓ Conclusions.



Unit 2

Teaching in a digital world



New educational model

There exist **recent international studies** on student performance and knowledge plagued by poor results.

**The educational agents
are doing it wrong**

**What might the
solution be?**

In addition to having technical training, the teachers must **learn new didactics** helping them to focus on the new **needs of the students** from the digital point of view.



"Living in a world in constant change means that whoever stays in the same place goes backwards".

(Alejandro Piscitelli).



Unit 3

Digital competences



Types of competences

According to Jordi Adell (2011), the components of digital competence are:



Informational competence.

Technological or computer competence.



Generic cognitive competence.

Digital citizenship competence.



Multiple literacies.

Relationship between ICT and teachers, students and contents.



Informational competence

Set of knowledges, aptitudes and skills required to work with information.

Enables the students to search for and evaluate information effectively.

How is this aspect transferred to the classroom programming?



Informational competence: application

TREASURE HUNT

Aim: selection and production of information.

Questions and a list of addresses of web pages from which the information necessary for answering the questions can be extracted. Some include a “big question” at the end which requires reflection and the merger of all the previously selected information.

Treasure hunt

WEBQUEST

Aim: Guided research. Transforming and processing information.

Research activity in 5 steps, in which all or most of the information the students are going to use is obtained from the web. There are several types:

Short duration: from one to three sessions.

Long duration: from one week to one month. They have more thorough and sophisticated tasks.

Webquest

OTHER ACTIVITIES OF INTEREST

“Virtual tours”, “Virtual gymkhanas” and “Earthquest”.

Other activities of interest

Know more...

For more information, click on the buttons.



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Informational competence

Have you ever wanted to know more about these types of activities?

Go to the “Materials” section for the tutorials on these activities and the examples available there.

Technological competence

Use and handling of technological tools.

- ✓ Ebook reader.
- ✓ Smartphones.
- ✓ Tablets.
- ✓ Digital cameras.
- ✓ Laptops.



Multiple literacies

Most of the information people receive is through **different languages**, and therefore it is necessary to be trained in order to become **critical spectators and authors or creators**.



Multiple literacies: application

The tools with which we can work on the different literacies are those which allow us to make digital publications.

For more information, click on the buttons.

BLOG

This is a space on the web for posting regular publications. It may consist of text, video, photographs, images, gifts, etc. It can be commented on by other users and chats can be created on what has already been published. It is an opportunity to share and exhibit works, prepare a personal log or update the notes on a subject.

Blog

WEB MURALS

Interactive web murals and virtual posters. In addition to observing and sharing, they allow us to interact with them, as well as visualising images, animations and even videos. The most widely-used online platforms nowadays are Glogster and Google Sites.

Web murals

DIGITAL PRESENTATIONS

They help to synthesise what has been learnt or researched, as well as serving as support for its presentation. There currently exist online tools (such as Prezi) or well-known software such as PowerPoint and OpenOffice. To share the publications on the internet there exist platforms like SlideShare.

Presentations

Know more...



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BLOG

Would you like to see examples of blogs and digital presentations applied to the educational field? In the “Material” section we provide some interesting examples.

Generic cognitive competence

This means being able to **differentiate** useful information and **create knowledge** with it. There are currently huge amounts of information thanks to access to different and varied sources.



Generic cognitive competence: application

The proposed tools allowing the communication of the participants from any place are the **debate or discussion forums**, given that:

- ✓ Users can **make contributions** to topics raised by the teacher or other students.
- ✓ They can be used at **different levels**: a specific class, a course, a cycle, the whole school and, why not, with more schools in the region and even schools in other countries.



Digital citizenship



We live in a world in which reality and the online or virtual world are becoming confused; preparation is needed; friends and relations, behaviour and conduct can be found in both the real and the virtual world.

For more information, click on the button.

It is essential to have education which allows us to be critical, free and integrated citizens, capable of living in society with norms and standards of conduct.

The **family** plays a **fundamental role** in education and in the development of this competence, both in terms of **responsibilities**, rights and duties and in the **form of behaving online**.

[Know more...](#)



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Aim

To ensure that legality is respected and that our rights as digital citizens are known and enforced.

Digital citizenship: application

For more information, click on the buttons.

This competence is worked on at a more collaborative level, in which joint platforms of shared knowledge are created.

WIKI

These are collaborative websites which can be edited by several users. They allow immediate publication, access control, editing permits, the uploading and storage of all kinds of files, as well as links to external pages for inserting videos, presentations and audios. Their main feature, within the educational world, is the great potential for collaborative work in the classroom that they generate.

Know more...

Wiki

Do you want to see some examples of Wikis? You can find them in the "Material" section.

The teacher's digital competence

For more
information,
click on the
button.

"The digital technologies in all their dimensions generate new challenges, invent new formats and oblige us to redesign the educational processes. Therefore, we can say that the challenge is twofold: it is necessary to learn new things and we have to teach the old ones in a new way, teaching the old with new eyes".

Alejandro Piscitelli (2009)

The digital knowledge the students possess should also be known by the teacher by means of active didactic methods, in order to develop good judgement through practice and reflection.



Know more...



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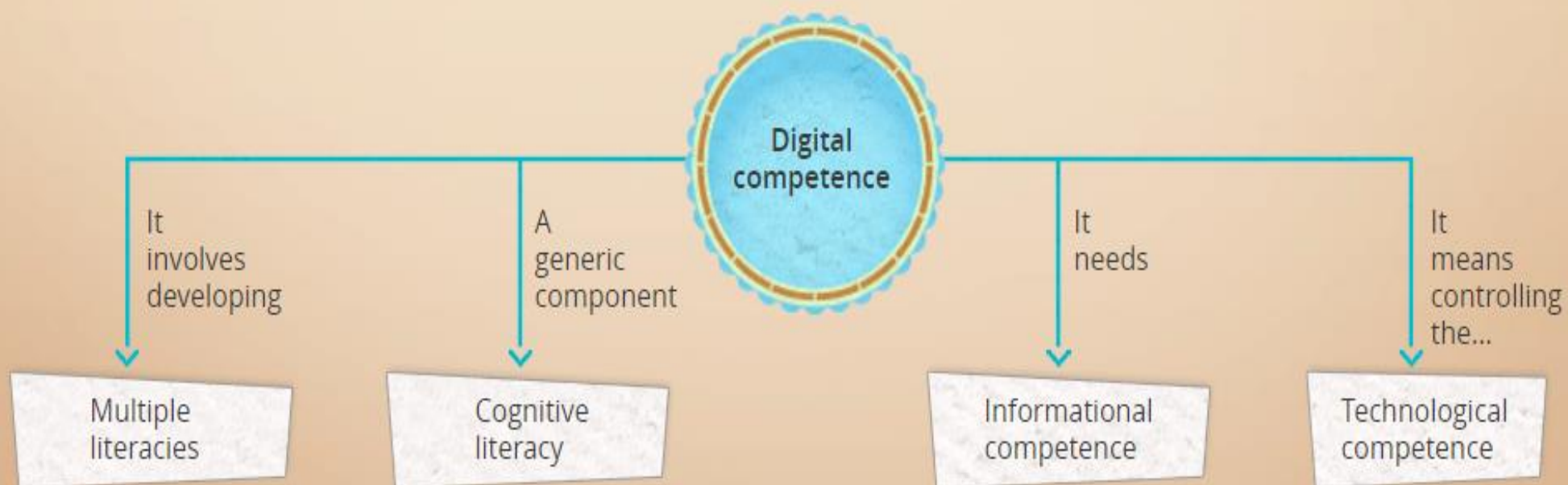
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COLLABORATIVE WORK

The methodology to be used must be based on the development of activities, thereby learning through action and encouraging, whenever possible, collaborative work among the students.

Conclusion



[Download PDF](#)



Unit 4

Relationship of ICT



A little reflection

We have already portrayed digital competence and its components but, as a teacher:

What is the use of introducing ICT into my classroom?

What can be generated by it, in addition to digital literacy?

Understand the ways enabling us to work on the different **relationships existing** between the educational agents in the classroom. All of this can be suitably **structured and planned** to form part of the **classroom programming** which is designed.



Relationship of ICT with...

For more
information,
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vertical
arrows

Students, contents and tasks

Joint activity between teachers
and students

Teachers, contents and learning

Learning environments

Teachers and students



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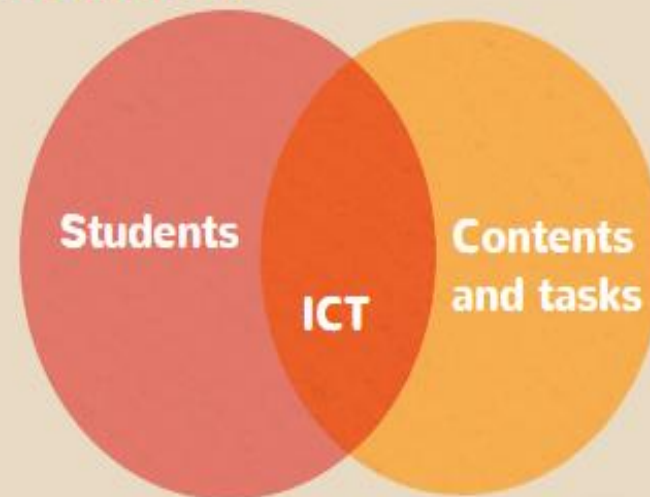


Relationship of ICT with...

For more
information,
click on the
vertical
arrows

Relationship between ICT and students, contents and tasks

The students **explore and analyse** the **contents proposed** by the teacher, which will be available on a database, a website or a virtual platform. In this way, the students will be introduced to the contents and tasks with a view to **encouraging inquiry and increasing curiosity**. Then tasks and activities will be proposed to be worked on with them (or studied more thoroughly), with presentations, conceptual maps, etc.



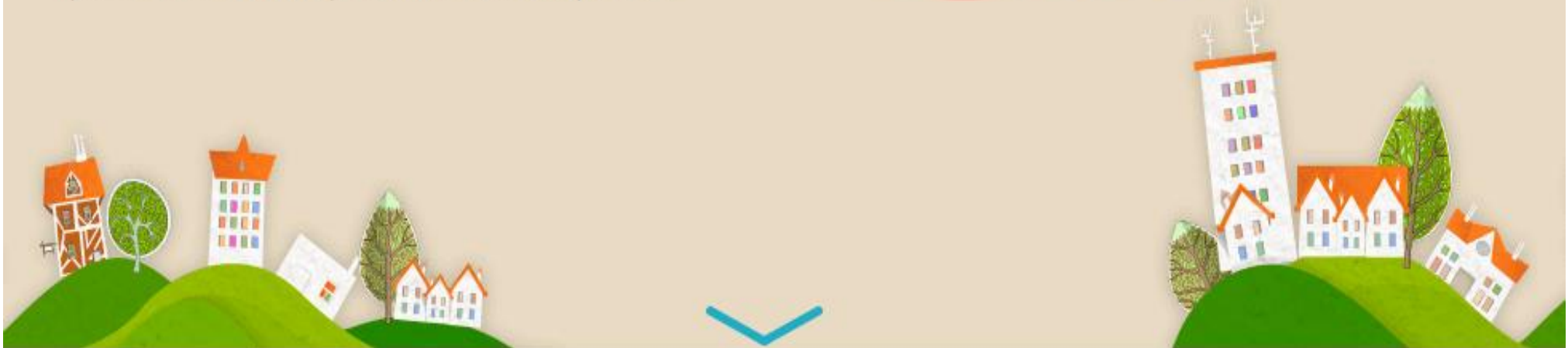
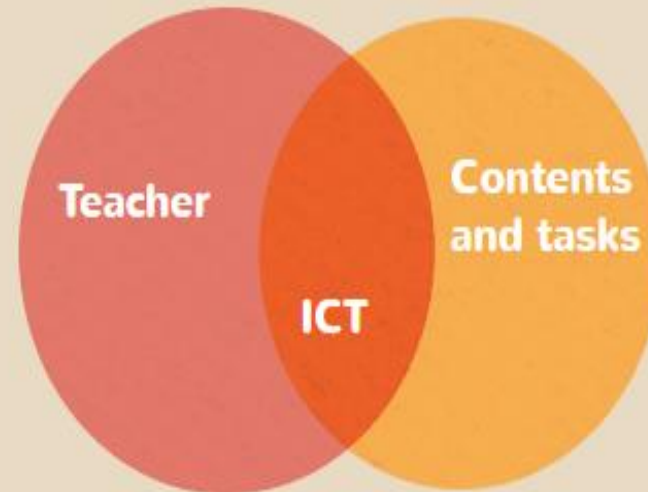
Relationship of ICT with...

For more information, click on the vertical arrows

Relationship between ICT and teachers, contents and learning

The teachers can search for, select and organise information related to the teaching contents.

In addition, they can **access databases** and **teaching proposals** created by teachers around the world, besides creating their own. All this will help them to perform programming, prepare the classes and presentations, draw up schedules and temporalise.



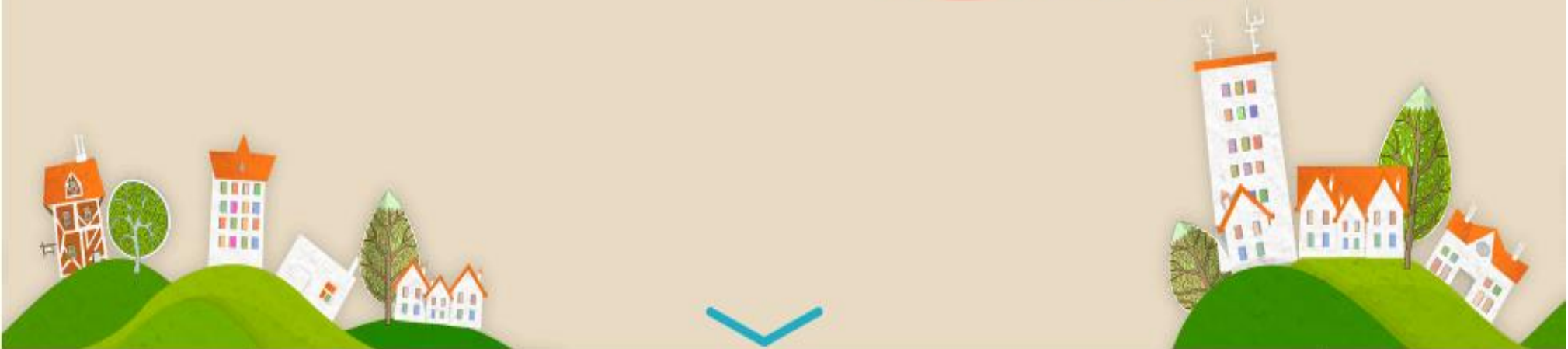
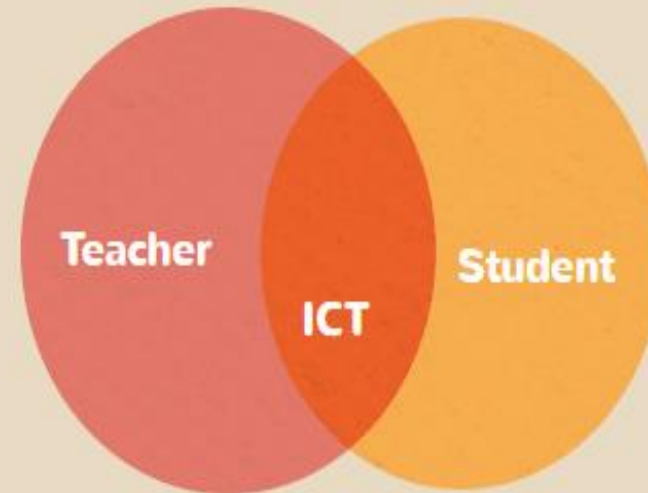
Relationship of ICT with...

For more information, click on the vertical arrows

Relationship between ICT and teachers and students

More **communicative exchanges** can be made, in such a way that the teacher-student relationship becomes closer and they can even work together.

A very interesting variant is also to enhance the pupil-pupil relationship, in such a way that classes are created with environments of greater trust and conviviality.

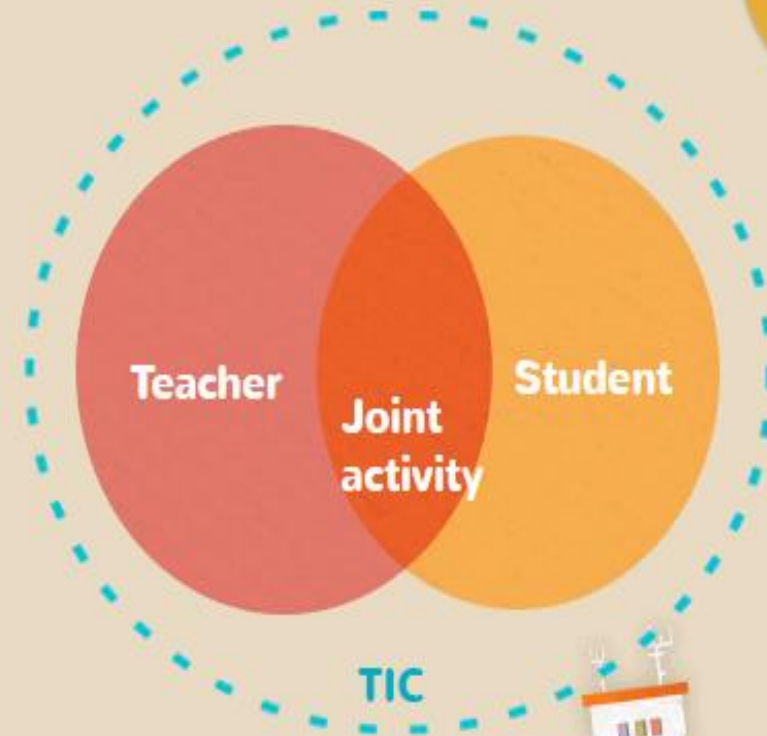


Relationship of ICT with...

For more information, click on the vertical arrows

Relationship of ICT with... Activity between teachers and students

Both **can work together** on common projects: blogs, wikis, presentations, searches for information related to learning contents, etc. Student **"helpers"** for the teacher can be established to support the teacher's lectures.

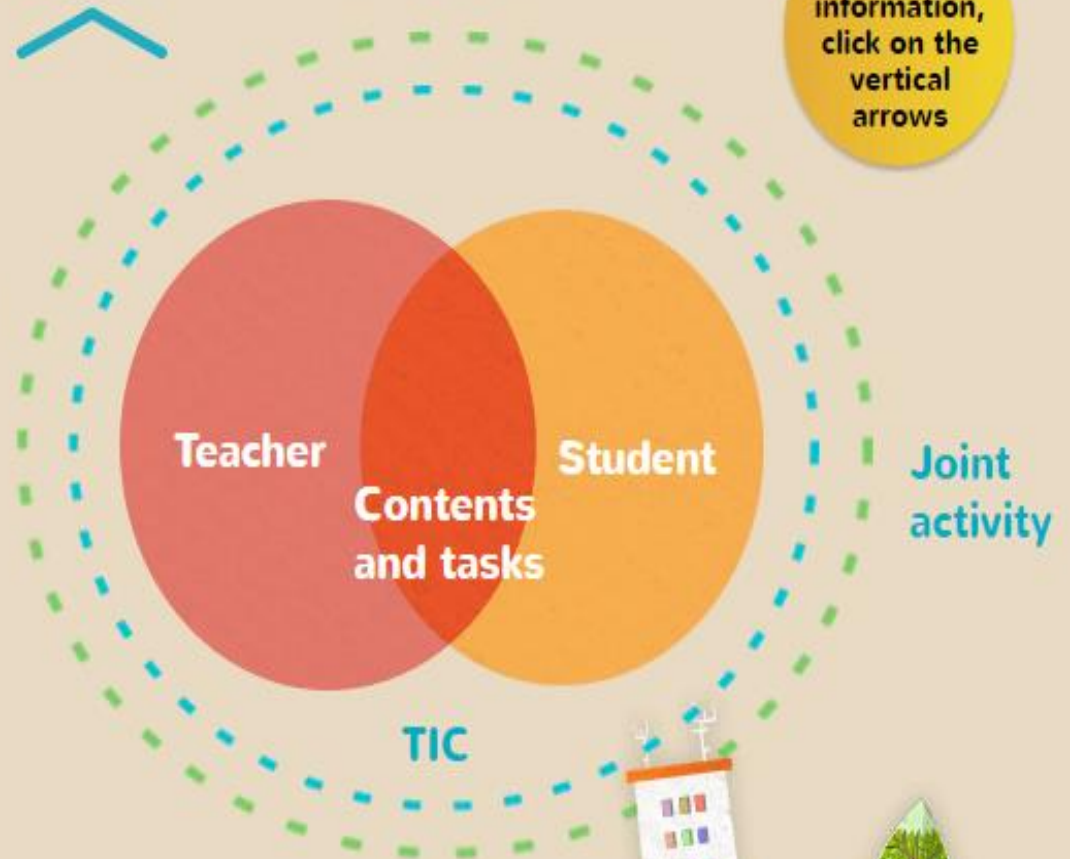


Relationship of ICT with...

Relationship between ICT and learning environments

By having a wiki (for example) we can combine all the aspects, thereby creating a **work and learning environment** for teachers and students in which there is access to the contents and tasks included in the subject, course, cycle, etc.

We can also create individual, **collective**, group and even **inter-school** learning spaces.



Unit 5

Changes in didactic programming



What needs to be modified and adapted?

For more information, click on the button.

Forms of organization of the curricular content.

Educational and evaluation methods.

Management and participation in the classroom.

Design of didactic situations.

Know more...

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The pedagogical redevelopment of teachers entails a change in their role, and for this purpose proper and adequate training is absolutely necessary.

The teacher's function

Teachers must make an effort with regard to their adaptation, training, updating and the development of their knowledge, so that a **new learning model** can be generated to help them to train as they are: **digital natives** who need **learning environments** enriched by ICT.



The teacher's role

UNESCO has made a proposal highlighting three aspects to be developed in this new teaching role.

For more information, click on the buttons.



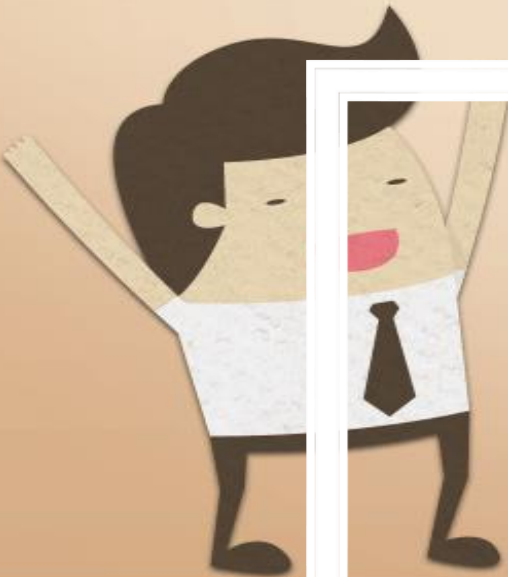
Basic notions of ICT



Furthering of knowledge



Generation of knowledge



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BASIC NOTIONS OF ICT

The teachers must have the sufficient digital knowledge to integrate the use of basic tools into the curriculum, pedagogy and classroom structures. They must learn how, where and when to use ICT in the classroom.

GENERATION OF KNOWLEDGE

Teachers should innovate to produce new knowledge, transmitting this idea to the students so that, in this way, they are also creators of knowledge within the teaching and learning process. In this way the students understand that they can be self-taught and they can manage their own learning.

FURTHERING OF KNOWLEDGE

They need to update their didactic methodologies, focusing their teaching on the role of a guide and administrator of the learning environment.

Learning environments

The ideal learning environments enriched by ICT should be: active, constructive, collaborative, intentional, contextual, reflective, conversational and practical.

- ✓ It is necessary to **rethink** the whole **system**.
- ✓ Generate **meaningful learning**.
- ✓ Important not to see the incorporation of ICT as the "dehumanization" of education.
- ✓ The **teachers** are at the **centre** of the solution.

Know more...

WHAT IS THERE TO REFLECT ON?

As a teacher, when creating new teaching and learning activities for which new methodological approaches will be used, it is important to reflect on:

- Their demands.
- Durations.
- Forms of participation.
- Responsibilities of the participants.
- Sources to be viewed and used.
- Forms of help they need to receive for their development.
- Monitoring of the students' progress by the teacher.
- Ways of solving learning problems which arise.
- How the students follow their own learning.
- Characteristics of the results and products obtained.
- Evaluation criteria to be used.

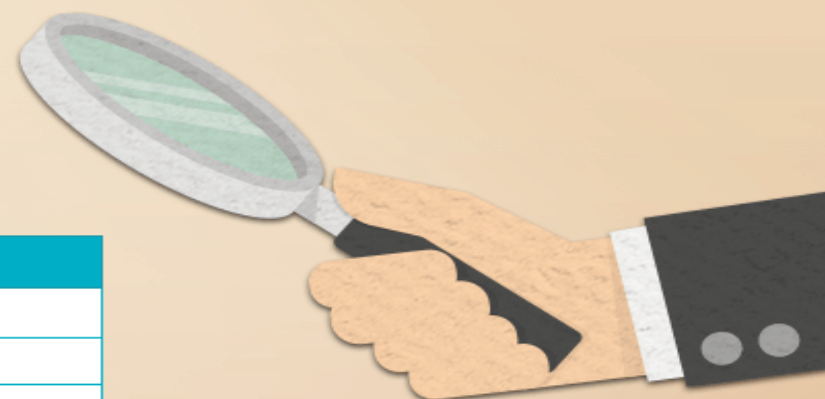
Unit 6

Methodology



New proposal

The redesign of the educational processes



Environment	Classical model	New model
Knowledge and learning Pedagogical communication	Structured, controlled.	Adaptable, dynamic.
	One to many.	Many to many.
	Linear learning.	New environments.
	Memoristic teaching.	Social construction of knowledge.
	Focused on the teacher/content.	Focused on the development of the student.
	Managed by the teacher.	Managed by both.
	Teacher transmitter.	Teacher mediator.
	Organised into classes and subjects.	Based on activities and experiences.
	Competition and individualism.	Participation and collaboration.

What is sought by ICT is to make the most of its potential to promote new ways of learning and teaching.

Know more...



EMERGING PEDAGOGIES

“A set of pedagogical approaches and ideas, as yet not fully systematised, which are arising through the use of ICT in education, attempting to take full advantage of their communicative, informational, collaborative, interactive, creative and innovative potential within the framework of a new learning culture”. (Adell and Castaneda, 2012).

Their main aims are:

They seek to generate significant knowledge and skills.

Their background is based on pedagogical and classical theories.

The learning generated is ubiquitous and in different contexts.

The “learn to learn” competence is very present.



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Methodological approaches

Bimodal
curriculum

TPACK



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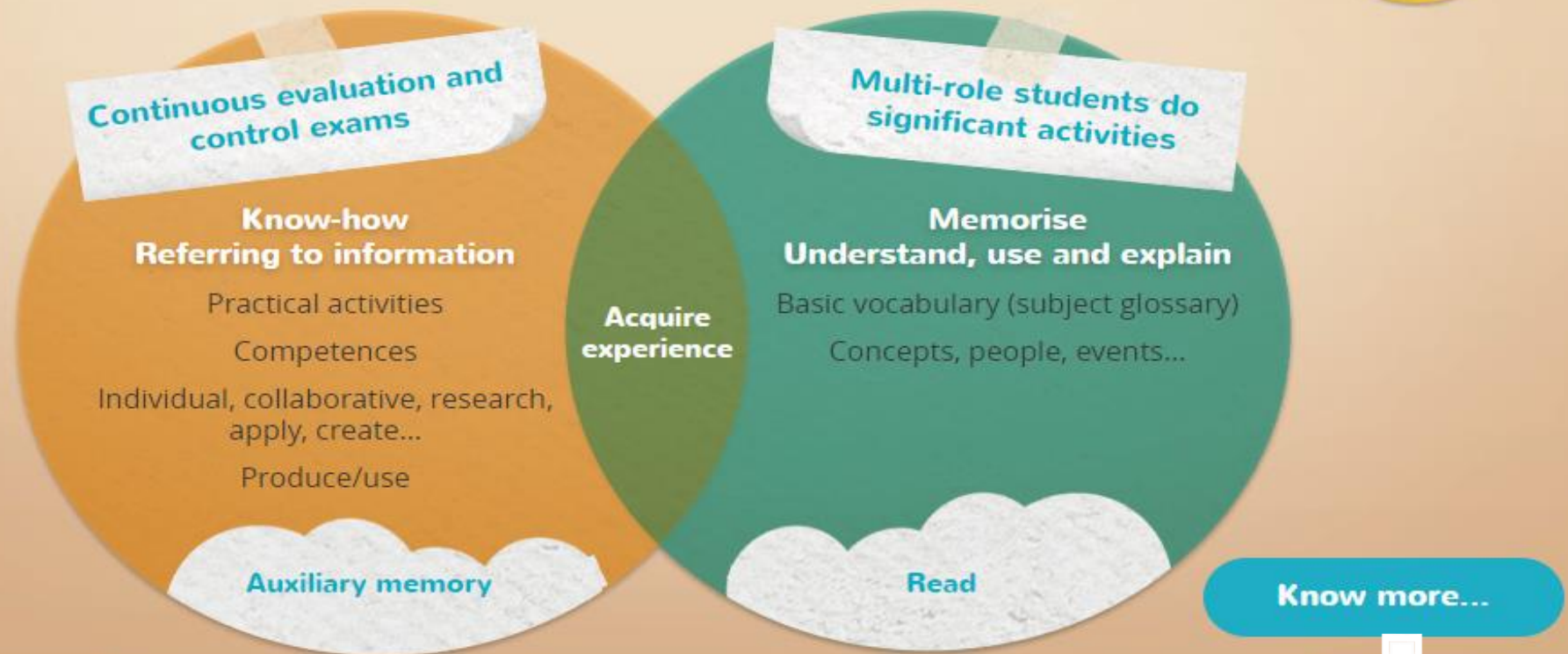
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Bimodal curriculum: what is it based on?

The bimodal curriculum is based on two basic pillars: know-how and memorising.

For more information, click on the buttons.



THE BIG SECRET

This new paradigm is having very positive results, but what is the secret? According to its author, we have reached a moment at which information is omnipresent, and this releases us from memorising many things. What is the point of memorising a physics formula if we will always have it within our reach? It is not logical for a student to fail a subject like physics due to not remembering a formula: what is important is that he or she can reason and develop the problem presented.

Bimodal curriculum: general features

The bimodal curriculum proposes that the teacher should draw up a **glossary of basic knowledge** and basic practical activities which will be conducted by referring to the students' auxiliary memory.

For more
information,
click on the
buttons.

These activities will be
those conducted each day in
the classroom.

Know more...

GLOSSARY OF BASIC KNOWLEDGE

This involves knowledge and information that the teacher regards as basic and essential on the subject being taught and which will be delivered to the students as soon as the course begins, so that they can be guided towards what is really important.



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Bimodal curriculum: auxiliary memory

These are **materials** the student can refer to, whether they be the student's own notes, books (digital or otherwise) or information extracted from the internet.

What can be stored?	What kinds of auxiliary memories can we create?
✓ Notes, documents, photographs and other multimedia resources. ✓ Links (webs, blogs, maps, videos, etc.) and contacts (email, networks, etc.). ✓ Internet tools for processing information: web 2.0, search engines.	✓ On paper: when we do not have computers or tablets. ✓ In digital format: each student can bring a removable memory. ✓ On the internet: in the form of a web, blog, wiki, etc.

It is a personal space in which the students can store functional resources to complement what they already know or what they have previously memorised.



Bimodal curriculum: what would a class be like?

Two kinds of activities

For more
information,
click on the
buttons.



Content activities



Practical activities

CONTENT ACTIVITIES

Understand, use, memorise/know and explain the concepts.

Explanations by the teacher and the students which will be complemented by application exercises, questions, proposals, internet searches, etc.

PRACTICAL ACTIVITIES

Exercises, projects, problem-solving, material creation, research, evaluations, etc. which are supported by the auxiliary memory.

Conceptual and geographical maps, timelines, diagrams, posters.

- Multimedia presentations or searching for resources on a topic.
- Debates in on-site and online forums.

Bimodal curriculum: the student's role

The students are multi-role, adopting different functions depending on the proposal which is made.

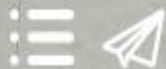
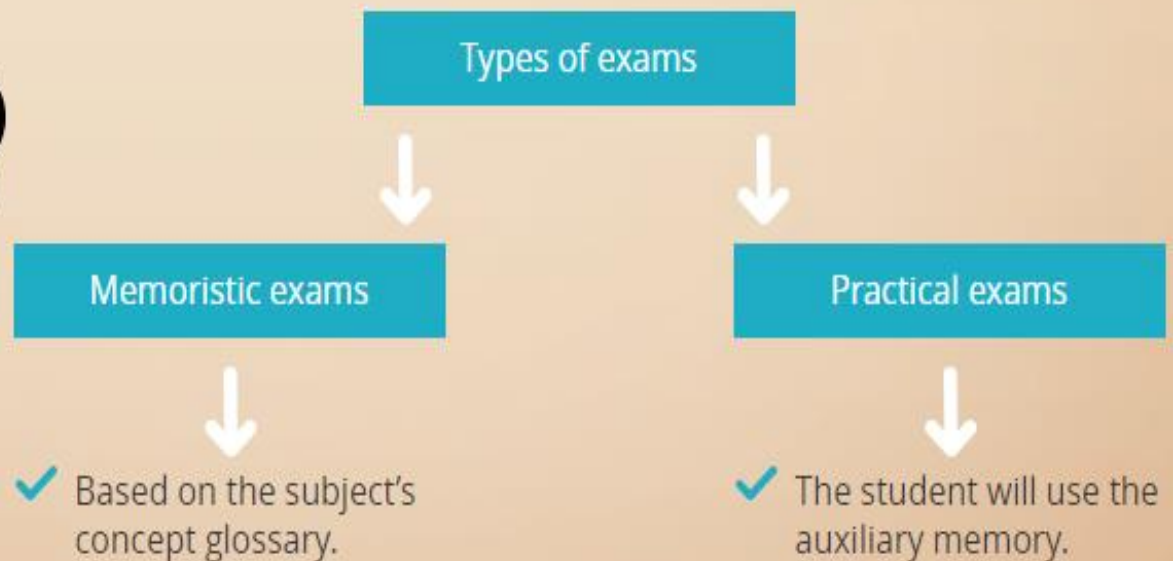


All the work performed by the students, often collaborative, will be presented to their classmates in a way in which it can be assessed and improved by all of them.



Bimodal curriculum: how to evaluate?

All the activities which are conducted will receive **subsequent feedback** and a **log** will be kept on them (notes, positive points, etc.). **The students** will be involved in the **evaluation process** and there will be two types of exams.



TPACK I

* Technological-pedagogical-disciplinary knowledge

For more
information,
click on the
vertical
arrows

The centrepiece of the whole
framework of concepts is the
knowledge which links all the
branches together:
technological-pedagogical-
disciplinary knowledge.



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TPACK I



For more
information,
click on the
vertical
arrows

1. Knowledge of the technologies

- ✓ Handle and know different digital tools and resources.

2. Pedagogical knowledge

- ✓ Know how to teach.

3. Disciplinary knowledge

- ✓ Knowledge of the subject to be taught.

A. Technological – pedagogical knowledge

- ✓ Know how to use digital resources to teach (use a blog in education).

B. Technological – disciplinary knowledge

- ✓ Use digital resources to teach certain concepts (use a GPS and then draw a map).

C. Pedagogical – disciplinary knowledge

- ✓ This would be the specific didactics of the subject we are going to teach.

* Technological-pedagogical-disciplinary knowledge



TPACK II

1. Choose the contents, review the aims and the competences to work on.
2. Make practical pedagogical decisions on the nature of the didactic activity.
3. Select and sequence the types of activity to be combined to form the didactic sequence.
4. Select the evaluation strategies.
5. Select the appropriate digital tools and resources.

Download PDF



Innovative methodological strategies

For more information, click on the buttons.



PROJECT-BASED LEARNING

Challenges for the students in which they will have to use their knowledge, skills and experience if they want to resolve them.



Example



HISTORICAL NEWSPAPER

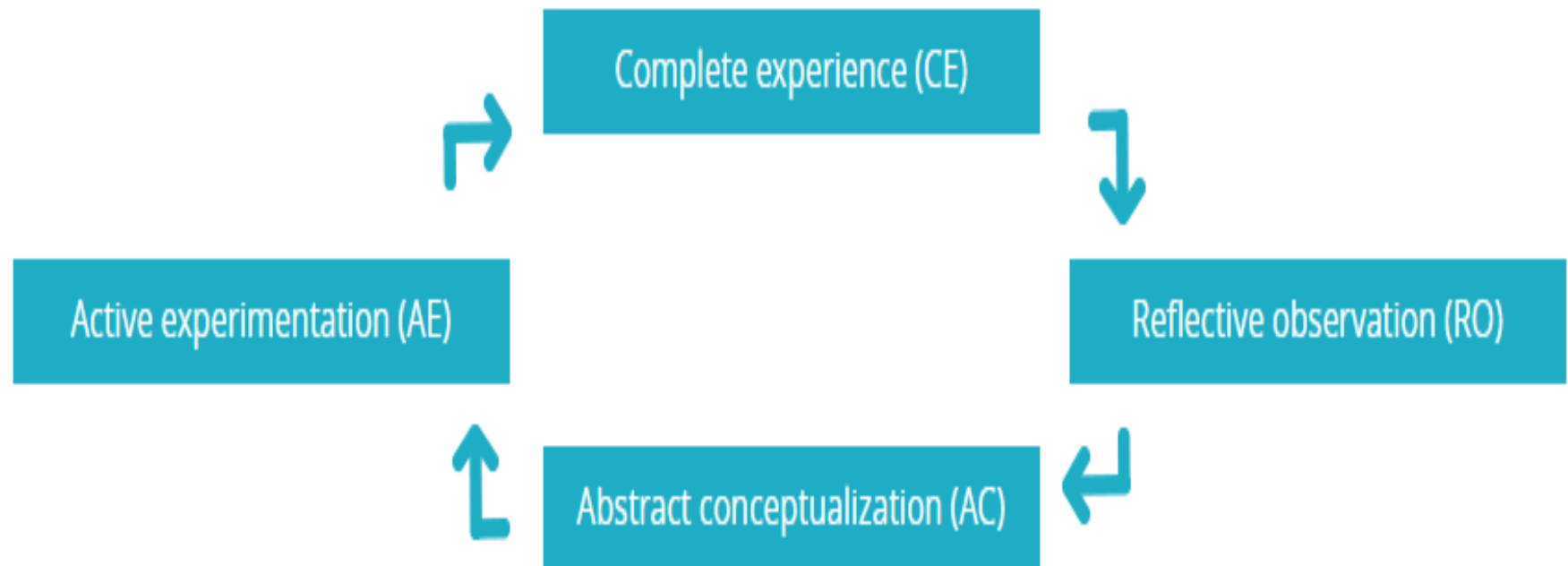
An example of project-based learning is as follows:

It is proposed to make a historical newspaper, so that the students can research, write and present it. This will be done in groups and each of them will have to select a date and a city. Each member of the group will be responsible for the creation of one of the parts of the newspaper (news, music, sports, literature, etc.). Once this has been done, they must upload it onto the class blog or wiki, where everyone will be able to read it, and there will then be a presentation in front of the class.

Experimental learning

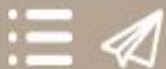


Specific experience, observed and analysed to formulate abstract concepts which will then be verified or actively experimented on in new situations, thereby creating new concrete experiences and starting the learning cycle again. It is based on **four parts**:



Unit 7

Conclusion



Summary

The incorporation of ICT into the educational field should not be seen as the “dehumanization” of education, as the presence of a teacher to guide the whole teaching and learning process is essential.

Teachers are the centre, **the solution**, and this is why their new role entails:

- ✓ Learning how, where and when to use ICT in the classroom.
- ✓ Updating their didactic methodologies.
- ✓ Innovating, producing new knowledge and transmitting this idea to the students so that they are also creators of knowledge.



Practical activity

In the activity the teachers are invited to apply ICT to a specific topic, such as the water cycle. To do so they will have to:

Activity

Compilation of information (digital or on paper) for knowledge of the topic and structuring of the content.

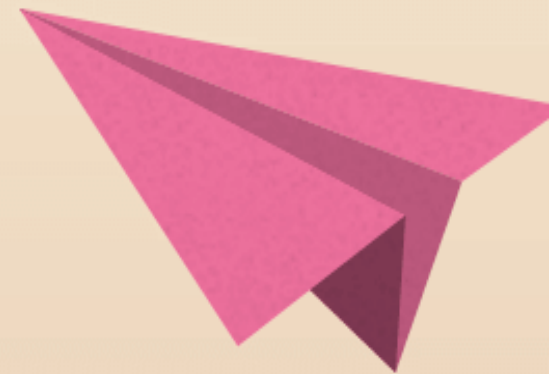
- ✓ Create a presentation with the basic information.

Objective

- ✓ To create a wiki in which each group is an important character in the water cycle.

Results

- ✓ Create an activity in which the students make a digital mural to present it in class.



Final word

We encourage you to put into practice the strategies and methodologies learnt in the exercise of your profession.

Are you ready for this great change?

We remind you that to finish you can take the evaluation test and check what you have learnt.



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