



Project co-funded by the European Union



Final Report - Output 9

Experimentation Campaign

Characteristics, objectives, conclusions and recommendations of the experimentations



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INTRODUCTION

The experimentation campaign during the first part of the project led the consortium to specifically consider the teaching emerging from the experimentation fields, and thereby redirect how the methodology and tools were being developed to be able to improve meeting the project's initial aims (Cf. Report – Output 9 -1st Experimentation Campaign).

This methodological principle - a 'pilot' experimentation phase laying the foundations for a second enhanced experimentation - and the teaching that has been taken from it thereby position YESict as a real continuous improvement approach, based on a bottom-up approach.

For the record, the most significant changes for this second campaign actually involved redesigning the following methodology and tools:

- A new website / new support platform to access pedagogic resources
- Emphasis on the teachers' role during their training time and methods allowing self-training.
- Formalisation of four scenarios to stage the YESict methodology

These scenarios suggest variants regarding the duration of the sessions and how to divide up the combination of digital tools / non digital tools.

- Pre and post experimentation tools making it possible to implicate stakeholders by identifying how they represent entrepreneurship, measure students' "entrepreneurial" skills and compile elements to measure the different types of impacts linked to the YESict approach.

As opposed to the initial experimentation phase and in order to obtain as much information as possible, all the partners involved in the project have used the YESict methodology in their country. Final experimentations were thereby carried out in France (ANTIC), in Spain (EHI), in Denmark (VS) and in Cyprus (EDEX).

This project phase thereby enabled work on the following goals:

- Testing the YESict methodology via vividly realistic experimentations.
- Questioning the digital contribution to work on entrepreneurial skills
- Producing and finalising pedagogic scenarios and tools with a view to their dissemination.

As during the initial experimentation phase, the partners involved have been asked to observe and analyse use of the methodology and tools created within the YESict project by following this procedure: identify and contact schools interested in the approach, train the teachers on the methodology and tools, take part in the experimentations, observe the experimentations and obtain results and feedback from the participants (Cf. Report – Output 9 -1st Experimentation Campaign).



This final experimentation report, as a complement to the "Output 9 - 1st Experimentation Campaign" report, thereby presents the main characteristics and results from the detailed experimentations as follows:

- 1. The description of the different final experimentations (context and implementations)
- 2. The main teaching from the final experimentation
- 3. Recommendations to produce a methodological kit that would provide complete autonomy for future schools and professional users.



1 DESCRIPTION OF THE EXPERIMENTATIONS

The experimentations carried out in France, Spain, Cyprus and Denmark were written up in reports by the observers present during the YESict sequences. The main characteristics were then presented in the form of summarised description sheets; the teaching and the recommendations are, in turn, developed in parts 2 and 3 of this report.

1.1 EXPERIMENTATIONS IN FRANCE.

In France, the second experimentation campaign took place in two private schools: the La Salle Saint Bernard middle school in Bayonne and the Immaculée Conception middle school in Biarritz. An alternative initiative also emerged at the Stella Maris middle school in Anglet.

1.1.1 La Salle Saint Bernard Middle School

Experimentation date: 8th November 2017 to 6th February 2018.

Number of teachers involved: 4 teachers (maths, physics-chemistry, history-geography and art) plus the deputy head.

Students involved: 26 students from year 10 (14-15 years old)

Other types of professionals involved: Éric Gagnaire – entrepreneur co-founder of Patatam, an online service to buy and sell women and children's second-hand clothes during the "1.3 Let's ask them!" activity.

DESCRIPTION OF THE EXPERIMENTATION CONDITIONS:

Teacher training sessions

- Duration: 7 hours 8th and 15th November 2017 from 1.30 to 5 pm
- Trainees: 3 teachers and the deputy head
- Training programme:
 - YESict project
 - YESict pedagogy
 - o The 7 stages and their activities
 - The pedagogic team and their choices



Experimentation:

Specific goals:

For the Saint Bernard school, this experimentation is a chance to test the YESict methodology with a class for whom "active" pedagogy seems particularly appropriate. Some students struggle with "classic" mark-based assessments. At the end of the school year, most of them intend to switch to vocational training programmes. This class has 7 Spanish students.

The challenge set by the pedagogic team is "Imagine your ideal neighbourhood".

• Experimentation premises / place:

Classroom and IT room. The art room could not be used during the modelling period as hoped due to lack of availability.



· Scheduling the experimentation and envisaged activities

5 DAYS - Extensive use of digital tools DAY 1 DAY 2 DAY₃ DAY 4 DAY 5 29/11 and 30/11 14/12 and 15/12 18/12 and 19/12 26/01 06/02 6 hours 7 hours 4 hours 6 hours 4 hours 1. INTRODUCTION/MOTIVATION 6. PROTOTYPING 6. PROTOTYPING 7. COMMUNICATION 4. EXPLORATION 1.1. SHORT INTRODUCTION 4.1. ASSOCIATING IDEAS - 30' 6.3. PHYSICAL MODEL 6.1. PLANNING THE MODEL - 30' 7.1. POSTER OF THE SUGGESTED SOLUTION -VIDEO - 20' 30, 4.2. 6 KEY QUESTIONS - 30' 6.2. DIGITAL MODEL 1.2. JIGSAW - 60' 7.2. POSTER OF THE REFLECTION PROCESS - 30' 4.3. STAKEHOLDERS - 30' (Finish the model) 5 hours 45 minutes 1.3. LET'S ASK THEM! - 110' 4.4. TECHNICAL SPECIFICATION 1.4. WHAT DO YOU NEED? - 30' - 60' 4 hours 7.3. INVITATION - 30' 7.4. PREPARATION OF THE PRESENTATION 1.5 2 hours 45 minutes 3 hours 30 minutes hours - 2.5 hours 3-4 hours 5. CONCEPTION + day of presentation 5.2. ALL 5 SENSES - 30' 2. IDENTIFYING THE CHALLENGE 5.3. SUPERHEROES - 30' 2.1. BRAINSTORMING - 40' 5.4. SCENARIOS - 60' 2.2. WHAT'S THE PROBLEM? -5.5. SELECTION - 30' 40' 1 hour 20 minutes 3 hours 3. FORMING A TEAM 3.1. TARGET SCHEMA METHOD - 30' 3.3. STUDENT ROLES - 15' 3.2. LOGBOOK - 45' 1 hour 20 minutes Manual activities



ICT / non ICT tools used

The teacher used her tablet to display the instructions at the start of the activity and show the tool sheets that the students use on paper support. The logbook is also produced on paper by each sub-group.

The tablet and the students' smartphones were used to take photos and film the activities.

The videos from activity 1.2 "Jigsaw" were shown in the computer room on individual computers. In the computer room, Tinkercad and its 3D libraries were used to make digital models.

Adaptations made

The "5.1 Brainstorming" activity was left out to avoid making students perform this activity twice (pedagogic situation already implemented in the challenge identification phase).

As there was not enough time to make the physical model, the students continued their projects in art class to prepare the presentation for 3rd May 2018.

Pedagogic approach, intervention and teacher's stance

The sequences were systematically supervised by two teachers from the four in the pedagogic team mobilised for the experimentation. They acted as a facilitator and organiser to support the students and help them overcome any obstacles.

Links established with practices/projects that had already been implemented:

- During the experimentation: YESict will act as a support during the oral test for students taking the middle school leaving certificate.
- After the experimentation: chance to use YESict in year 7 classes for "The Town of Tomorrow" history-geography class.



1.1.2 Immaculée Conception Middle School

Experimentation date: 8th November 2017 to 3rd February 2018.

Number of teachers involved: 3 teachers (maths, technology and history-geography) including the headmaster.

Students involved: 36 students from two year 7 classes (11-12 years old)

Other types of professionals involved: Daniel Lombard – Architect specialising in school complexes during the "1.3 Let's ask them!" activity.

Two professionals have occasionally supported 2 handicapped students particularly to understand the instructions - a teaching assistant also stepped in to supervise some of the students during one sequence.

DESCRIPTION OF THE EXPERIMENTATION CONDITIONS:

Teacher training sessions

- Duration: 7 hours 8th and 22nd November 2017 from 8.30 am to midday
- Trainees: 3 teachers (including the headmaster)
- Training programme:
 - YESict project
 - YESict pedagogy
 - The 7 stages and their activities
 - o The pedagogic team and their choices

Experimentation:

Specific goals:

After an initial experimentation led by the headmaster, this second occasion offers the Immaculée Conception middle school the chance to test the YESict methodology once again by getting more teachers involved. It therefore came down to agreeing on how to build and choose a uniform pedagogic dynamic.

The challenge set to the students by the pedagogic team is "Imagine the school of the future".

• Experimentation premises / place:

The technology room which was large enough to bring both classes together in the same room.

The classrooms so that some groups can perform the digital prototyping.



Scheduling the experimentation and envisaged activities

Extensive use of digital tools 1. INTRODUCTION/MOTIVATION 4. EXPLORATION 6. PROTOTYPING 6. PROTOTYPING 7. COMMUNICATION 7.1. POSTER OF THE SUGGESTED 1.1. SHORT INTRODUCTION 4.2. 6 KEY QUESTIONS - 35' 6.1 PLANNING THE MODEL 6.3. DIGITAL or PHYSICAL VIDEO - 30' MODELLING SOLUTION - 30' 4.4. TECHNICAL SPECIFICATION 6.2. DIGITAL OR PHYSICAL - 65' 1.2. JIGSAW - 60' MODELLING 7.2. POSTER OF THE REFLECTION PROCESS - 30' 1.3. LET'S ASK THEM! - 50' 2 hours 30 minutes -2 hours 30 minutes -7.4. PREPARATION OF THE 1.4. WHAT DO YOU NEED? - 10' 1 hour 40 minutes -23rd January 25th January PRESENTATION 1.5 hours 22nd January 2 hours 30 minutes -+ "Invitation Card" 2nd February 5. CONCEPTION competition 5.3. SUPERHEROES - 30' + presentation during 2,5 hours - 12th January 22nd January the school open day on 2. IDENTIFYING THE CHALLENGE 5.4. SCENARIOS - 30' 3rd February + homework 2.1. BRAINSTORMING - 70' 2.2. WHAT'S THE PROBLEM? -1 hour - 22nd January 1,5 hour - 19th January 5.5. SELECTION - 30' 23rd January 3. FORMING A TEAM 3.3. STUDENT ROLES - 20' 3.2. LOGBOOK - 40' 1 hour - 19th January Manual activities



ICT / non ICT tools used

The school's digital environment to access and share pedagogic resources.

The students' individual tablets, tools integrated daily in their school work.

The "Brainstorming" activity relying on a mix of paper/pencil work and the Padlet application.

Notability to rework the document and add their logo and their team name ("3.2 Log Book" activity).

Minecraft in collaboration mode, SketchUp and Sweet home 3D to create digital models.

Digital cameras and a green screen to embed special effects.

IMovie for the video montage by the students.

Adaptations made

Time required to introduce the activities and for transition was adjusted.

Introduction video adapted into French by the technology teacher. The voices-off were provided by the school's Year 8 students (translation but also working on the flow/rhythm of the dialogues to help comprehension). As for the presentation video, the dialogues in the 3 videos for "1.2 Jigsaw" were adapted into French. The flow was not modified.

At the start of the programme, the teachers were shown all the future stages on a heuristic map.

The "3.3 Student Roles" and "3.2 Logbook" activities were switched concerning the YESict method. This made it possible to use the "3.3 Student Roles" activity as a tool for the students to set up their own groups.

The presentation support for the "3.3 Student Roles" activity was enhanced to add dimensions relating to manual skills (to make the physical model) and digital skills (for the digital model).

The support allows students to choose their role within the team and the type of the future model to be made.

These 2 activities were merged into one for which 2 supports will be used to transpose the groups' thoughts and works. The "4.2 - 6 Key Questions" and "4.4 - Technical Specifications" sheets were adapted to simplify student comprehension and reading using colour codes. These colours should particularly help students properly identify the link between the 2 times of the activity and therefore between the two support tools.

The "3.1 Target schema method", "4.1 Associating ideas", "4.3 Stakeholders", "Brainstorming", "5.2 All 5 senses" and "5.5 Selection" activities were not scheduled.

Pedagogic approach, intervention and teacher's stance

The sequences were systematically supervised by three teachers among the four in the pedagogic team put together for the experimentation. They acted as facilitators and organisers to support the students and help them overcome any obstacles.



Links established with practices/projects that had already been implemented:

 The middle school is involved in a project to build new premises and has chosen to launch "Let's imagine the school of the future together" as a YESict challenge to compile students' suggestions for their future school and feed discussions from the point of view of "future users".

1.1.3 Another type of initiative at the Stella Maris middle school in Anglet

Aside from the final experimentation as envisaged within the YESict project, the Stella Maris school wished to capitalise on the work performed in the first experimentation carried out in the first semester of 2017.

The technology teacher, familiar with YESict tools (but generally already experienced in this type of pedagogical practices), built on this experience in order to help students organise a "This School's Got Talent" type event in March 2018.

The Year 9 'European' class, in charge of organising this project and not overly motivated by the task, thereby found fresh enthusiasm thanks to certain activities that helped instil a dynamic to ensure the entire logistics section on one hand while also planning and implementing all the communication actions required by this type of event on the other hand.



1.2 EXPERIMENTATION IN SPAIN

In Spain, the final experimentation took place at Andra Mari Ikastola in Etxarri Aranatz, the same school that tested the YESict tools during the first experimentation campaign.

Andra Mari Ikastola (Etxarri Aranatz)

Experimentation date: 8th to 12th January 2018 - presentation/feedback day on 23rd January 2018

Number of teachers involved: 5 teachers (including two head teachers and a member of the YESict consortium).

Students involved: 38 students from two year 8 classes (12-13 years old)

Other types of professionals involved: A local entrepreneur during the "1.3 Let's ask them!" activity. Other secondary teachers have occasionally provided support and attended the presentation/feedback day.

DESCRIPTION OF THE EXPERIMENTATION CONDITIONS:

Teacher training sessions

- Duration: 2.5 hours
- Trainees: 4 teachers
- Training programme:
 - YESict pedagogy and methodology
 - o The 7 stages and their activities
 - o Role play

Experimentation:

Specific goals:

After an initial experimentation run within this school, this second time was the chance for Andra Mari Ikastola to test the YESict methodology again by getting the teachers further involved and thereby coming to an agreement on constructing and choosing a YESict scenario.

The challenge set by the pedagogic team was "My ideal games room".

• Experimentation premises / place: regular classroom, art room and a workshop.



• Scheduling the experimentation and envisaged activities

The 5-day scenario with balanced use of digital and non digital tools was adopted.

Stages 1 "Introduction/Motivation", 2 "Identifying the challenge" and 4 "Exploration" were carried out with digital tools.

For stage 3 "Forming a team", some students produced the logo online and others drew it by hand.

Stage 5 "Conception" was performed on paper.

Stage 6 "Prototyping" was able to produce digital and physical models.

5 DAYS - Equal use of manual and digital activities						
	DAY 1 8th January 5 hours 30 min 1. INTRODUCTION/MOTIVATION	DAY 2 9th January 5 hours 30 min 4. EXPLORATION 4.2. 6 KEY	DAY 3 10th January 5 hours 6. PROTOTYPING	DAY 4 11th January 5 hours 6. PROTOTYPING	DAY 5 12th January 3-4 hours 7. COMMUNICATION	
2h	1.1. SHORT INTRODUCTION VIDEO 1.2. JIGSAW 1.3. LET'S ASK HIM! 1.4. WHAT DO YOU NEED?	QUESTIONS 4.3. STAKE HOLDERS 4.4. TECHNICAL SPECIFICATION 5. CONCEPTION	6.3. DIGITAL MODEL	6.3. PHYSICAL MODEL (Finish the model)	7.1. POSTER OF THE SUGGESTED SOLUTION 7.2. POSTER OF THE REFLECTION PROCESS 7.3. INVITATION 7.4. PREPARATION	
11h	2. IDENTIFYING THE CHALLENGE 2.1. BRAINSTORMING 2.2. WHAT'S THE PROBLEM?	5.1. BRAINSTORMING 5.2. ALL 5 SENSES 5.3. SUPERHEROES			OF THE PRESENTATION	
30' 11h	3. FORMING THE TEAM 3.1. TARGET SCHEMA METHOD 3.2. LOGBOOK 3.3. STUDENT ROLES	5.4. SCENARIOS 5.5. SELECTION				
30,	4. EXPLORATION 4.1. ASSOCIATING IDEAS	6. PROTOTYPING 6.1. PLANNING THE MODEL Manual ac	ctivities ⋛			



ICT / non ICT tools used

Google Drive (organisation of files as suggested), google docs, google presentations, Sketch.io, Tinkercad.

Adaptations made

The YESict methodology was followed as suggested with the exception of the 2nd stage "Identifying the challenge" that was adapted as the challenge had already been defined upstream.

Pedagogic approach, intervention and teacher's stance

As suggested in the teacher's guide, the teachers acted as facilitators. This encourages the learners to work collectively in autonomous cooperative learning groups. The students appreciated working and learning in this way.

Links established with practices/projects that had already been implemented:

- During the experimentation: YESict was linked in with an English class on inventions in Year 8. The students are also used to working in cooperative learning groups.
- After the experimentation: A link could be made with classes in Year 11, where cooperative learning groups had to design a town in digital form (also using Tinkercad).



1.3 EXPERIMENTATION IN CYPRUS

In Cyprus, the final experimentation took place at the Apostle Lucas primary school in Nicosie.

This school is located in an urban area. Most students come from families affected by financial difficulties. Six students in the class have learning difficulties.

Apostle Lucas primary school in Nicosie

Experimentation date: 14th to 20th December 2017

Number of teachers involved: 3 teachers

Students involved: 23 students from a primary class (11-12 years old)

Other types of professionals involved: School headmaster

DESCRIPTION OF THE EXPERIMENTATION CONDITIONS:

Teacher training sessions

- Duration: 6 hours (2 sequences of 3 hours) on 14th and 15th December 2017
- Trainees: 3 teachers
- Training programme:
 - YESict pedagogy and methodology
 - YESict platform
 - The 7 stages and their activities

Experimentation:

Specific goals:

The main aims of the experimentation were to test the tools and the methodology developed in a real environment and encourage the development of entrepreneurial skills among children in addition to learning and using digital skills.

The challenge set by the pedagogic team was "My ideal neighbourhood".

• Experimentation premises / place: usual classroom equipped with digital equipment.



Scheduling the experimentation and envisaged activities

The experimentation followed the approach suggested in the teacher's guide for 3 days with extensive use of ICT tools (option 4).

3 DAYS - Extensive use of digital tools							
	DAY 1 - 18th December 5 hours 30 min	DAY 2 - 19th December 5 hours 30 min	DAY 3 - 20th December 5 hours				
2h	1. INTRODUCTION/MOTIVATION 1.1. SHORT INTRODUCTION VIDEO 1.3. LET'S ASK HIM! 1.4. WHAT DO YOU NEED?	5. CONCEPTION 5.1. BRAINSTORMING 5.4. SCENARIOS 5.5. SELECTION	6. PROTOTYPING 6.3. DIGITAL MODEL (Finish the model)				
1 h	2. IDENTIFYING THE CHALLENGE 2.1. BRAINSTORMING 2.2. WHAT'S THE PROBLEM?	6. PROTOTYPING 6.1. PLANNING THE MODEL 6.3. PHYSICAL MODEL	7. COMMUNICATION 7.1. POSTER OF THE SUGGESTED SOLUTION 7.2. POSTER OF THE REFLECTION PROCESS				
1 h	3. FORMING A TEAM 3.2. LOGBOOK 3.3. STUDENT ROLES		7.3. INVITATION 7.4. PREPARATION OF THE PRESENTATION				
1 h	4. EXPLORATION 4.2. 6 KEY QUESTIONS						
30,	4.4. TECHNICAL SPECIFICATION						

• ICT / non ICT tools used

Beyond the digital tools recommended by YESict (Plateforme, Google Drive, Google docs, Sketch.io, Tinkercad): an office computer, a printer and an Internet connection, 24 tablets (one for each child and one spare) and an interactive whiteboard.

Adaptations made

The YESict methodology was followed as suggested, the activities were not specifically adapted.



Pedagogic approach, intervention and teacher's stance

The teachers involved in this experimentation overall have very good digital skills, but no entrepreneurial culture. Although they have received training, the observer still commented that, during the experimentation, certain activities were led in a conventional teacher-focussed approach. The observer had to step in subtly and remind or, in some cases, guide the teachers to help them act more like a facilitator.

Links established with practices/projects that had already been implemented:

During the experimentation:

The pedagogic tools were applied in the "Design and technology" classes. The project methodology learning was followed in other after-school activities. During the experimentation, the students were reminded of similar experiences relating to previous projects and they were tied in with the on-going activities. It was highlighted that YESict learning will be useful for the future.

After the experimentation:

The art teacher applied the same pedagogic framework to develop stop-motion animation projects using soft clay figures.

The YESict approach was reused by the students when participating in a competition entitled "Technological innovation in education", organised by the Minister of Education and Culture and the Foundation for Promoting Research.



1.4 EXPERIMENTATION IN DENMARK

In Denmark, the final experimentation took place in the Svend Gønge school in Vordingborg.

Svend Gønge school

Experimentation date: 20th to 23rd February 2018

Number of teachers involved: 4 teachers

Students involved: 46 students from two year 8 classes (12-13 years old)

DESCRIPTION OF THE EXPERIMENTATION CONDITIONS:

Teacher training sessions

- Duration: 2 hours (the teacher's guide had been consulted previously)
- Trainees: 4 teachers
- Training programme:
 - YESict pedagogy and methodology
 - YESict platform
 - o The 7 stages and their activities

Experimentation:

Specific goals:

Observe the students in a particular process based on methods allowing a freedom of action and initiative for the learners.

Observe how usually distracted students manage to adapt with active pedagogy.

The challenge set by the pedagogic team is "The best classroom in the world".

• Experimentation premises / place: 2 regular classrooms



Scheduling the experimentation and envisaged activities

The experimentation followed the approach suggested in the teacher's guide over 3 days and a limited use of ICT tools (option 1).

3 DAYS - Use of manual activities mainly						
	DAY 1 20th February	DAY 2 22nd February	DAY 3 23rd February			
	5 hours 30 min	5 hours 30 min	5 hours			
2h	1. INTRODUCTION/MOTIVATION 1.3. LET'S ASK THEM! 1.4. WHAT DO YOU NEED?	5. CONCEPTION 5.1. BRAINSTORMING 5.4. SCENARIOS 5.5. SELECTION	6. PROTOTYPING 6.3. PHYSICAL MODEL (Finish the model)			
1 h	2. IDENTIFYING THE CHALLENGE 2.1. BRAINSTORMING 2.2. WHAT'S THE PROBLEM?	6. PROTOTYPING 6.1. PLANNING THE MODEL 6.3. PHYSICAL MODEL				
1 h	3. FORMING A TEAM 3.2. LOGBOOK 3.3. STUDENT ROLES					
1h	4. EXPLORATION					
30,	4.2. 6 KEY QUESTIONS 4.4. TECHNICAL SPECIFICATION					
		Manual activities 😭				

• ICT / non ICT tools used

For this experimentation, due to their lack of interest in digital tools, the teachers chose to keep them to the strict minimum. The students mainly worked on paper.

A few students tried to use Minecraft to build the classroom but unsuccessfully.

A few students used an interior design application to visualise the classroom, with success.

Adaptations made

Compared to the recommended YESict methodology, and most particularly scenario 1, the "1.1 Introduction video" activity and the 4 activities in stage 7 "Communication" were not carried out.



Pedagogic approach, intervention and teacher's stance

The teacher chose for the observer to present the project at the start of the experience and assigned him the role of pedagogic 'guide'. The observer was designated as the "process facilitator": his role consisted of presenting the activities and giving the students instructions.

The teachers and the observer found it hard to follow the envisaged process. The students were impatient to start building the prototype.

Links established with practices/projects that had already been implemented:

During the experimentation:

YESict tied in with five days of training taken by the students concerning prototyping and 3D design in autumn 2017.



2 THE MAIN TEACHING FROM THE EXPERIMENTATION

The different experimentations carried out and described above have been shown to be brimming with teaching, over a wide range of items. This covers all dimensions of the project: the players involved in the tools and processes that were designed and implemented by the consortium.

2.1 STAKEHOLDERS AND PLAYERS

The YESict programme, more particularly the experimentation phase, has brought together different players from which the following teaching can be taken.

2.1.1 The students and their profile

The experimentations run in the different countries involve an audience from 11 to 15 years old. Although certain test groups were similar in age, it is impossible to make certain comparisons due to:

- The diversity of the profiles and sociodemographic characteristics of the students and their families.
- o The implementation conditions that were subject to a variety of adaptations in line with the constraints from each school.

The YESict programme methodology and pedagogy has nevertheless been adapted to different ages and profiles, subject to adapting the content to the audience and context.

2.1.2 The pedagogic teams: role and profile

As a reminder, pedagogically, the **Challenge Based Learning (ChBL)** approach, an active learner-focussed teaching method, was modified to meet YESict targets by including the principles of **Design Thinking (DTh)**, a methodology used by designers to resolve complex problems and find acceptable solutions.

This pedagogic hybrid implies questioning the teacher's stance and how they run the pedagogic sequences as it refers rather more to encouraging and boosting a dynamic on different scales (class group, collaborative sub-groups, the individual within these assemblies) than putting across masterful, traditional know-how.



To do this, the pedagogic teams being put together have much to be gained by comprising diversified and complementary profiles (technology, history-geography, art teachers, etc.) even though coordination and a collective approach had been envisaged upstream (see "teacher training" on the following page). During the YESict sequences, this diversity in the pedagogic team can be specified by reinforced, close monitoring of sub-groups of students but also by cooperation between co-teaching pairs in order to run the different sequences in the programme (particularly the prototyping phase and making the digital and physical models)... and thereby discuss their own representations of entrepreneurship.

2.1.3 Participating third parties

Beyond the pedagogic teams, two types of players from outside the school can provide something extra to the approach.

o The socio-economic professional In stage 1 "Introduction/Motivation", a professional comes in during the activity "1.3. LET'S ASK THEM!" to talk about his/her entrepreneurial experience and more particularly illustrate the four skills worked on by YESict.

The third party observer

During the YESict experimentation, the consortium partners commissioned an observer to be present during the sequences. Beyond this role of observer, they might take a further step to support the teaching team in how they run the activities or to interact with the students on certain activities (such as the digital model). This position of the observer, particularly when presenting the activities and giving instructions to the students seems to be explained by not enough upstream teacher training time (Denmark). This leads to the need for trainers to receive support to start the activities and give students clear instructions.

These supports, for some at the start of the programme, might mean bringing in an unusual player for the students to immediately "break off" the classic teacher/student relationship.



2.2 TRAINING THE TEACHERS

In general, preparation is fundamental for all pedagogic sequences. Within the context of YESict, this time allows teachers to fully get to grips with the methodology and the sequences/activities used with the students.

To do this, in the opinion of the different teachers involved in all the countries, the teacher's guide is a complete tool that encourages self-learning and a grasp of the YESict spirit, the methodology and the different activities on offer. Self-training videos, made by UNIC are also available but only in English for the time being.

However, the training time, variable depending on the country (between 2 and 7 hours) is a necessary complement in order to help teams through designing a customised scenario. Adjustments actually seem inevitable in order to include the YESict method in a school with its own constraints and characteristics. The configuration of the premises, the availability of rooms, pedagogic teams, constraints linked to the calendar, a pre-planned school programme, digital tools already used and of course pedagogic choices are all factors that require these adaptations.

However, one prerequisite is essential: teachers must have a good command of the digital tools (particularly working in a digital environment). The time given over to training does not envisage a sequence focused on mastering software (such as Sketchpad or Tinkercad for example).

Beyond these goals, YESict training is also a key time in which to come up against each person's pedagogic conceptions and practices. This task of taking a step back from your own teaching practice is performed on two levels:

- Talking about the YESict pedagogy and its dynamic compared to usual pedagogic practices
- Team management of a class group over time and methods that might be unusual. Actually, belonging to the same school does not guarantee uniformity regarding pedagogic conceptions and practices. YESict has to engage a collective reflection and obtain a consensus regarding the teacher's role and stance.



2.3 THE FOUR EXPERIMENTATION SCENARIOS

It is important to suggest staging options for the YESict programme with different parameters concerning duration and type of digital tools used.

As a reminder, the four options on offer are:

- Option 1: Shorter time Equal use of manual and digital activities
- Option 2: Extended time Equal use of manual and digital activities
- Option 3: Shorter time Extensive use of digital tools
- Option 4: Extended time Extensive use of digital tools

Only the experimentation run in Cyprus used all the YESict activities without making any adaptations (scenario 3).

Consequently, as previously mentioned regarding teacher training, the contexts and constraints of the schools, their teams and their learners require adjustments to be made in order to design a customised programme.

2.4 ADAPTING STAGES AND PEDAGOGIC ACTIVITIES

Certain pedagogic tools and support documents, although very complete and explicit, have still been subject to simple reformulation of instructions, or even adaptations to run activities differently and thereby meet the students' needs more successfully.

By way of illustration, the following tools were adapted by a French school:

The four Videos "1.2 Jigsaw": **The subtitles were removed and the soundtrack adapted** to French to help student comprehension.

"2.2 What's the problem?", "4.2 Six key questions", "4.4 Technical Specifications": **Certain support instructions were reformulated**.

"3.3 Student Role": **Reorganisation of the support document structure** for the students (within the group, dividing students into groups making the digital or physical model, displaying the main skills required for each type of design).

It should be noted that most participants believe that the 4.4. "Technical Specification" activity ("Exploration" stage) is difficult for students to tackle and complete, particularly for the younger ones. A technical specification conception is a complex document to produce even for professionals who are used to this type of task.

Certain pedagogic choices could also affect the stages and scenarios of activities suggested by YESict. For example, choosing the type of challenge upstream has been shown to lead to reorganisation of stage 2 "Identifying the Challenge" (Spain).

Finally, the suggested timing to run certain activities might turn out to be too short for some of them (such as designing the physical model).



Furthermore, activities cannot run together mechanically and transitions must be organised. This time was not counted in the suggested methodology.

In short, regarding the different experimentations in local contexts, the pedagogic choices made, the type of audiences and their level of digital skills require and bring about the **adaptation of stages and activities** which were proposed to be "turnkey".

2.5 YESICT DIGITAL TOOLS

The project suggests a **complete set of digital tools**, designed and deployed both for communication on the project and to specifically implement YESict within a school.

2.5.1 The Web Platform - http://yesict.eu/

The platform was completely reworked by FJH and now presents triple interest thanks to its different functions.

Firstly, the platform is the **support allowing everyone to get detailed information** on the YESict project and the consortium running it.

In the same way, it offers **dedicated access for teachers** where they can find self-training videos (collaborative pedagogy and the teacher's role, the digital tools used and the YESict methodology) as well as the teacher's guide in PDF version.

Finally, **the last space is intended for students** where they can watch the videos and download the support files for the activities.

So this website targets all the project stakeholders but also third parties likely to promote and/or use YESict in the future.

2.5.2 The Software and pedagogic applications

Support tools for different pedagogic activities, these applications (Google Drive, Sketchpad, Tinkercad and its 3D object libraries) present a good support basis to run a YESict scenario, giving strategic priority to digital aspects.

However, within the experimentation, it was possible to replace these tools with other equivalent applications that had already been used in the schools by the students and pedagogic teams. As an example, a French school already working on a specific digital environment (http://ddec64.itslearning.com) has used this space to offer students the different pedagogic tools and organise storing work on each student's pre-existing "cloud".



Further applications were also integrated to run certain activities. For example, the "2.1 Brainstorming" activity could be run via the "Padlet" application, the digital prototyping was enhanced thanks to "Sweet Home 3D" digital tools (France) and "Minecraft" (France and Denmark). Finally, one school (France) which owned digital video equipment provided students with digital cameras, a green screen to embed the special effects and video montage software (IMovie) to prepare phase 7 "Communication". To present their work, the students could use the "slides" software (Spain).

It is clear that **beyond the actual tool itself, it is rather more its functional features** that are interesting to meet the chosen pedagogic goals.

2.6 LINKS WITH THE SCHOOLS' PRACTICES AND PROJECTS

The experimentations were able to confirm the compatibility of the YESict project with the practices, initiatives or projects already on-going within the schools in the consortium member countries. Here are some (non exhaustive) examples:

2.6.1 YESict working for pedagogic innovation

- The Stella Maris middle school (France) used certain activities suggested in the YESict pedagogic guide and transposed them to a project that had already begun, helping students to organise a event along the lines of "This School's Got Talent".
- At the Apostle Lucas school (Cyprus) YESict was reapplied by the students when participating in a competition entitled "Technological Innovation in Education", organised by the Minister of Education and Culture and the Foundation for Promoting Research. The learners modify a robot sold in the shops to operate solar panels as an energy source. Certain aspects of the YESict methodology are used to design and validate the prototype. They will also use the techniques and tools for the project presentation.

2.6.2 YEsict used in an architectural project

The Immaculée Conception middle school (France) is currently working on a project to build new premises and has chosen to launch "Let's imagine the school of the future together" as a YESict challenge to compile the students' suggestions for their future school and feed the discussions from the point of view of "future users".



2.6.3 YESict to enhance classes envisaged in school programmes.

- Andra Mari Ikastola (Spain) has linked across with teaching involving students from different age groups (English classes on Inventions for students aged 12-13 based on cooperative learning groups). This school also worked with a class of students aged 15-16 years old on designing a digital town with Tinkercad.
- In *Svend Gønge-Skolen (Denmark)*, YESict linked in with five days of classes on prototyping and particularly 3D drawing.

2.6.4 YESict as support for validation of a National Education diploma.

For the students in the Year 10 class at *La Salle Saint Bernard (France)*, YESict will act as a support for the oral test in their National Leaving Certificate. This test (Parcours Avenir) not only requires students to present a project carried out during the school year but also involves taking an objective look at how the approach was used to get to the final results. The integral YESict dynamic falls perfectly within these two goals, particularly using the "7.1 Poster of the suggested solution" and "7.2 Poster of the reflection process" activities.

YESict, or how to mix entrepreneurial skills, pedagogic innovation, project approach and participative methods using digital levers.



2.7 IMPACT OF THE EXPERIMENTATION ON STUDENTS AND PEDAGOGIC TEAMS

As a result of the experimentations, the feedback from students, teachers or observers, collected through interviews or a variety of questionnaires, was able to highlight the following impacts:

2.7.1 Impact on student motivation

All learning situations, all pedagogic sequences and their methods, no matter what they are, are adhesion - or non adhesion - factors for a class group.

The different stakeholders - teachers, students, observers - have emphasised the students' general adhesion to the YESict dynamic. A few outstanding activities mentioned by students: real-life experience from professionals ("1.3 Let's ask them!" activity) that brought the world of entrepreneurship to life or the time devoted to prototyping (physical or digital models).

During this experimentation, the teacher also commented that certain students, usually struggling at school, really bloom in the learning context suggested by YESict and stand out as leaders and the driving force within their work group.

2.7.2 Impact on how students see the role of the teacher and the "student profession"

YESict questions the teacher/learner relationship to the extent that the interactions might be revealed to be very different to more traditional pedagogy. The students are encouraged to be autonomous, to take initiative and undertake their consequent share of reflection/production work. In other words, this is active pedagogy relying more on learning by experience than on a teacher putting across knowledge according to the "emitter/receiver" pattern.

These new situations lead students to envisage the pedagogic relationship differently. By way of illustration, during a school council meeting, the students not only backed the YESict project but also highlighted that during these sequences, the roles were reversed compared to what usually happened in class: "During YESict, the teacher sits back and the students work". This speaks volumes about how they conceive the student profession and the stance of a rather passive consumer that they might take during classes in general. Although it also acknowledges the breath of the pedagogic task that awaits all teachers standing in front of a class of teenagers to try and arouse their interest and hold their attention.



2.7.3 Impact on students' entrepreneurial skills and their perception of entrepreneurship

The task of compiling the nature of the perception of entrepreneurship is run in several stages with the students. Firstly, using a questionnaire upstream, then via the experimentation itself and finally, by submitting an assessment questionnaire at the end of the programme. The expanse and complementary nature of these different phases (role-playing for reflection, creation, production - real life experience from an entrepreneur) give students a better idea of what entrepreneurship is all about. It also allows them to perceive that the four targeted skills can be used, not only within entrepreneurship, but also in a project context and more generally in a large number of participative construction experiences individually and collectively.

As a reminder, the four skills worked on using YESict are creativity, problem-solving, self confidence (and self awareness by focusing on strengths/talents and weaknesses/room for improvement) and finally working together.

However, these four entrepreneurial skills that students work on via YESict can only be acquired and forged through experience, experimentation and confronting problem situations on a time scale that widely exceeds the YESict programme.

Through this experimentation and the methodology used,

some students become aware of their potential, their assets and their weaknesses. By way of illustration, the prototyping activities and particularly building the physical model helped a 15 year old student (France), struggling at school, realise that he liked manual activities and so envisage future training that he had completely refused to consider until then.

Although it is difficult to accurately identify the role of the YESict methodology when acquiring and/or reinforcing these skills, the fact remains that this programme helps strengthen creativity, problem-solving, self confidence (and self-awareness) and working together.

YESICT AS A
WAY OF
REVEALING YOUR
TALENT AND
CONSTRUCTING
YOURSELF AS AN
INDIVIDUAL.



2.7.4 Impact on teachers' pedagogic methods and their perception of entrepreneurship

The YESict experimentation allows teams of teachers to question and look objectively at their practices both individually and as a collective and encourages a shared pedagogic approach.

By way of illustration:

- Teachers from *Svend Gønge-Skolen (Denmark)* were destabilised by the nature of certain activities for which there is no preset and identified answer. In the methodology used by YESict, the result of an activity depends only on the student's production and it is merely an essential milestone in terms of moving further on in the project.

Consequently, teachers appreciate being able to observe students from a different angle and use activities for which "a single correct answer" is not required - *Svend Gønge-Skolen* (*Denmark*) and *La Salle Saint Bernard* (*France*).

- Teachers from *Andra Mari Ikastola (Spain)*, some of whom were already accustomed to this type of pedagogy, seized the chance to raise awareness and train their colleagues on this approach. The issues now lie in constructing shared pedagogy deployed among the students, particularly during the sequences run by several teachers: a reflection took place on the need for pedagogic coherence and its specific applications.

YESICT OR HOW TO USE
THE CONCEPT OF SOCIOCOGNITIVE CONFLICT AS A
SUPPORT AND ENHANCE IT
IN ORDER TO REVISIT
PEDAGOGIC METHODS AND
THEREBY PROMOTE
ENTREPRENEURIAL SKILLS.

Once the programme finished, the teachers looked forward to the post-YESict stage:

- At the La Salle Saint Bernard middle school

(France), the active pedagogy undertaken in YESict allowed teachers to envisage a transposition of their role and stance in certain activities or even certain classes (such as maths) usually taught and tackled from a more classic pedagogic angle.

Finally, through the questionnaire intended to evaluate the YESict project, the teachers, unanimously declared that they felt more capable of explaining entrepreneurship to students. They also stated that, from now on, they felt more capable of promoting entrepreneurial skills among students thanks to the YESict experimentation.

Some of them mention being able, from now on, to integrate entrepreneurial skills among their students.

The experimentation and the multiple teaching that could be taken away from it might help us envisage taking the YESict methodology one step further. This stance and intention to continuously improve can be seen in the recommendations presented below.



3 RECOMMENDATIONS

Here is a set of recommendations to produce and put across a YESict methodology likely to be absorbed as completely as possible by future schools and user-professionals. They refer to points covering a wide variety of project dimensions and they are the result of feedback from all stakeholders.

3.1 INCLUDE YESICT IN THE SCHOOL'S PEDAGOGIC STRATEGY.

In order to guarantee coherence of a pedagogic line and thereby meet goals, it is important, upstream, to bring the YESict methodology up against the pedagogic strategy that is already instilled in each school. This requires involving the management team and the teachers in the reflection and informing the parents about the approach.

This approach might initially comprise a YESict presentation to the whole pedagogic team. It can be supported by a task defining a shared pedagogic strategy (formalised by a SWOT matrix (strengths-weaknesses-opportunities-threats) on the following dimensions: importance of active pedagogy, digital aspect, entrepreneurial skills.

3.2 FORM A VARIED, SIMPLE PEDAGOGIC TEAM TO RUN ACTIVITIES.

It is advisable to pay very close attention to forming the team working on the YESict approach and thereby consider the following criteria:

Form a group with a small number of professionals so as to lower the risk of "pedagogic distortion" among the students.

Mix different profiles of professionals: teachers and also assistants for disabled students, teaching assistants can also be brought in during activities. And thereby suggest other situations, other interpersonal contexts to both students and professionals, thereby enriching their interactions.

Last and by no means least, all members of the teaching team should be convinced and driven by a teaching philosophy that revolves around active pedagogy.



3.3 PAY PARTICULAR ATTENTION TO TRAINING AND PREPARATION UPSTREAM

A good grasp of the methodology, the tools and the specific role of the teacher is fundamental in order to meet the pedagogic goals. Furthermore, "insecurity" that can put some teachers to the test when committing to this type of pedagogy could be alleviated by appropriate training and preparation.

We recommend setting up the following training programme for the pedagogic team:

TRAINING PROGRAM

Upstream, encourage people to get information from the platform to facilitate an initial approach with the tools.

1st half-day: Become familiar with YESict

- YESict approach: philosophy, methods and tools, entrepreneurial skills
- The role and stance of the pedagogic team: accompany (rather than teach) in a combined and complementary way.

Inter-session work:

- YESict and my school
- Identification of similar practices within the school (projects, digital practices, etc.)

2nd half-day: As a team, conceive a "customised" programme

• Organisation of the 7 stages and activities - or how to 'deconstruct to reconstruct' and working from the teacher's guide

These two half-days, completed by an intermediary task of taking some distance and identifying "gateways" with the practices in force, allow the players involved to fully grasp the concept,



3.4 DESIGN A "CUSTOMISED" PROGRAMME AS A TEAM

The four experimentation scenarios on offer have proven to be a solid basis to provide support for the schools. The fact remains that the design of a suitable programme to take into account the specific aspects of the audience is strongly recommended or even inevitable in order to share the issues and the implementation of the pedagogic sequences.

To do this, here are some non exhaustive recommendations:

- Consider the teacher's guide as a resource space from which it is possible to select and combine the suggested activities in different ways.
- Give yourself free reign to leave out some activities so as not to overload the programme (particularly for younger audiences).
- Organise the sequences and activities on several non consecutive days to create some distance between YESict times.
- Arrange and include transitions in order to streamline successions of activities and thereby encourage better understanding/appropriation of the approach by students.
- Arrange and include time dedicated to pedagogic anchoring in order to organise reporting-points and continually assess students' progression.
- Increase the timing for certain activities in order to leave more space for the unexpected and encourage interaction between groups of students.

3.5 ADAPT CERTAIN TOOLS AND PEDAGOGIC ACTIVITIES

- Translate the videos used for teachers' self-training and the videos intended for students into the languages of each country (Danish, Cypriot, Spanish, Basque, Austrian German and French) to make them easier to use.
- Create a support document encouraging the succession of tools "2.1 Brainstorming" and "2.2 What's the problem?" in order to improve the latter's results. Problems that are correctly identified and described lay the foundations for good prototypes and good overall results for the process.
- Take some liberties regarding pedagogic supports by providing your own adaptations (such as adding colour codes, reformulating instructions, adapting the support to tools that are regularly used, etc.) for example "2.2 What's the problem?", "4.2 Six key questions", "4.4 Technical Specifications", "3.3 Student Role".



3.6 CREATE CONDITIONS THAT WILL HELP STUDENTS ACHIEVE GOALS

- Lay down operating rules for students to encourage a work framework in phase with the "spirit of YESict". For example:
 - Implication and listening
 - "Welcoming confrontation"
 - · Non judgmental no criticism
 - Any idea is good, even if it seems pretty far-fetched
 - Chance to move around and swap ideas with other groups
 - Possibility of asking others
 - "Productive" noise allowed
- Stimulating students' creativity from the very beginning by proposing a challenge leading them to project themselves beyond what is possible. For example, "Imagine your school like you'll never see it" or even "imagine a neighbourhood that is impossible to build".
- In certain ways, encourage kids to take a chance, develop strategies to go beyond the instructions they were given.
- Create teams from the outset to encourage adhesion and student motivation.
- Systematically suggest that students make digital AND/OR physical models in order to cover all their skills and their learning "profiles".
- Include the testimony of a professional ("1.3 Let's ask them!" activity) in order to shed light specifically on entrepreneurial skills.
- Use digital tools that students and teachers have already mastered. Digital is just a means of working, not the aim of the learning. It should not be seen as a filter, an opaque veil between the emitter and the receiver/producer.
- Encourage sub-groups to mingle and interact: a few instructions for example: "Go and dig up some ideas from your neighbours use talents in other groups present your progress to another group"

3.7 DEVELOP AN ALTERNATIVE SCENARIO, INVERTING THE YESICT PROCESS.

The YESict methodology, from its early stages (identifying problems, characteristics, constraints, etc.) requires students to make good use of abstraction.

In order to guard against blockages (particularly among the younger students) linked to this process, it will be interesting to run the YESict programme starting with the prototyping phase. And thereby bring about deduction, following these productions, of the characteristics and needs covered by the creations, to end up with a technical specification.



3.8 GO ONE STEP FURTHER...

Encourage the teachers to transpose YESict methods to other disciplines

The 4 skills being worked on are cross-discipline and not exclusive to entrepreneurship. They are approached as "vital" skills for all citizens and necessary to evolve calmly in a school context and later a professional context, regardless of their future status.

For example, teaching entrepreneurs but also other disciplines in a cross-disciplinary way and in co-teaching.



4 CONCLUSION

Aside from the assessment feedback, the suggestions made and the modifications requested by the participants, the general appreciation of the experimentation was very positive. This saw commitment from almost all the students plus great interest shown and expressed by participating teachers.

YESict allowed teachers to revisit the pedagogic relationship and dynamic that they instil among and with their students. This initiative was also the occasion to open the field up to new possibilities in terms of pedagogic engineering.

By encouraging certain teachers to come out of their comfort zone, YESict was for them, and for their students, the chance for a worthwhile experience, encouraging them to look objectively at their practice and share a new learning space in a different way.

Thanks to everyone's opinions, the YESict "toolbox" is full. By offering the possibility of relevant pedagogic activities, these components are easy to grasp and use with existing devices.

The experimentations and their teaching reinforce the YESict methodology and its operational tools. However, it is fundamental to keep in mind its necessary free adaptation as YESict was always intended to be implemented by players in very different education systems, each following its own schemes, real life situations and specific contexts.

Although it is wise to propose frameworks, scenarios and pedagogic tools to teachers, pedagogy remains a matter of choice, options and commitment. Committing to a new learning dynamic to work on students' entrepreneurial skills firstly requires a certain freedom in terms of pedagogic strategy. This is also of interest for YESict: encouraging pedagogic teams and associated stakeholders in upstream discussion and rethinking of their position in the teacher/learner relationship.