YESict

Project co-funded by the European Union

Erasmus+

Final Report – Output 11

Assessment

Aims, features and conclusions of the assessments

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INTRODUCTION

The YESict (Young Entrepreneurial Skills by ICT) European project, jointly-funded by the European Union within the ERASMUS+ programme, was taken on by a consortium of 7 European partners in France, Spain, Denmark, Cyprus and Austria between 2015 and 2018 to develop entrepreneurial and digital skills among children aged 11 to 15.

Having observed that entrepreneurial intentions emerged and disappeared among children early on if not stimulated, the consortium devised a pedagogic methodology to develop four skills among children: creativity, problem-solving, collaboration and self confidence.

This methodology, supported by ICT tools, was tested during two experimentation campaigns under real conditions, allowing continuous improvement for the tools and the method.

In the end, it was evaluated to measure the project results and its impact among children aged 11 to 15 and the effectiveness of the innovative methodology being developed.

This final evaluation report on the YESict European project results presents the main project features and the evaluation results given in detail as follows:

1. Description of the activities and the project results
2. Description of the different evaluations (context and implementation)
3. The main lessons to be learnt from the evaluations

1 DESCRIPTION OF THE ACTIVITIES AND PROJECT RESULTS

1.1 RECAP OF THE PROJECT

The YESict project: "Young Entrepreneurial Skills by ICT", aims to:
- Develop entrepreneurial skills and abilities among children;
- Experiment with a new pedagogic methodology that uses digital supports;
- Create and disseminate a new teaching model;
- Promote exchanges and interactions between the worlds of business and teaching.

1.1.1 Context

The YESict project was devised by ANTIC and the University of Mondragon, having observed that entrepreneurial enthusiasm emerges and disappears very early in children if not stimulated.

Entrepreneurship is generally slowed down by:

- Fear of taking risks;
- Lack of experience;
- Absence or weakness in the social network;
- Entourage/family that discourage the initiatives.

And yet, the spirit of enterprise and entrepreneurship (creating one's own business or company or project) are becoming real assets for future professionals, still children right now.

The results of the research into this matter show that the majority of young entrepreneurs know a business leader or have had the chance to take part in an experience setting up a business.

There is an almost systematic lack of entrepreneurial culture and business start-up culture among young people, whilst studies show that being trained on entrepreneurship can make a difference: students with diplomas in entrepreneurship are more entrepreneurial than the others, and have greater entrepreneurial intentions than other students.

The latest developments in entrepreneurship in France and in Europe show territorial disparities.

Training programmes on these subjects are on offer in certain northern European countries and in North America but only for young people aged over 18 which considerably limits true cultural integration for young people. On the other hand, Europe is far behind other countries where entrepreneurship culture is more developed, particularly in the United States where entrepreneurship plays an essential role in economic growth.

The political intent to develop training for entrepreneurship and provide young people with the skills, knowledge and attitudes to develop an entrepreneurial culture all exist but the following has been observed (source: *Formation à l'entrepreneuriat à l'école en Europe* – Eurydice Report – European Commission):

- No guidelines in member countries on pedagogic methods to teach entrepreneurship;
- Entrepreneurship training is not worked into school programmes.

In parallel, ICTs represent a real learning opportunity. Using ICTs at different levels of education has a significant impact on developing learning and enhancing work skills. In education, ICTs have been demonstrated to provide incredible support both for teachers and learners, by allowing new resources to be developed for teaching and creating new methods for more efficient teaching.

The idea being developed, based on the YESict project, was to promote this culture from childhood, by using ICT tools as supports allowing teachers and children to gain entrepreneurial skills and abilities in a recreational and innovative way.

1.1.2 Ambitions and team mobilised around the project

The YESict project is an experimentation that aims to develop certain entrepreneurial skills among middle school students (11 to 15 years old), mainly using an innovative pedagogic method and digital tools.

Seven partners worked on YESict for 36 months:

- ANTIC (France), the development agency for digital uses in the French Basque Country, leader;
- University of Mondragon (Spain) and its DBZ department (Department Innovation and Design Center) for its research skills, experience design and eco-innovation. In charge of designing and developing the technological tools to support the methodology.
- Ikastolen Elkartea (Spain), network of schools in the Basque Country that was in charge of creating pedagogic material alongside the University of Mondragón plus experimentation with the children;
- Væksthus Sjælland (Denmark), economic development centre with competences in the education sector, deployment of new education methods thanks to new digital technologies, etc., merged in 2018 with ZIBAT, and Business and Technologies Institute in Denmark that develops training programmes and works on developing children's skills
- FH Joanneum University (Austria), applied sciences university for its competences in software development, digital media and ICT infrastructures,
- University of Nicosia (Cyprus) for its Management department and its research centre and innovations on e-learning, design in pedagogic engineering, educational technologies and learning among young people,
- Synthesis (Cyprus), research and education centre for its skills in developing and promoting social entrepreneurship, mentoring entrepreneurs, entrepreneurship training promoter for young people, etc.

1.1.3 Proposed methodology

The pedagogic methodology proposed within the framework of the YESict programme is based on two tools:

- Learning by problem-solving (Challenge Based Learning), learner-centred active teaching method;
- Design Thinking, methodology used by designers, draughtsmen and product and service designers to solve complex problems and find desirable solutions

The principle of the YESict programme, using both the aforementioned tools, is to activate 4 key entrepreneurial or personal skills working in project mode, selected by the consortium as primordial:

- **Creativity:**
  - Being curious and open-minded: developing several ideas and opportunities to create value, including better solutions to current and future challenges; Exploring and experimenting with new approaches;
  - Developing ideas: combining knowledge and resources to obtain beneficial effects

- **Problem-solving:**
  - Identifying problems: acting and working to meet targets, following intentions and finishing planned tasks
  - Going into action

- **Self-confidence (and self-awareness):**
  - Identifying strengths and weaknesses: identifying and assessing individual and collective strengths and weaknesses
  - Believing in your abilities: believing in your capability to influence the course of events, despite uncertainty, hitches and temporary failures.

- **Collaboration:**
  - Developing emotional intelligence: working and cooperating with others to develop ideas and turn them into actions
  - Working together: resolving conflicts and tackling the competition positively if possible.

1.1.4 Process for applying the innovative methodology

The process proposed by the pedagogic method, drawn up within the YESict project, consists of meeting a challenge / finding solutions to a problem by linking together 7 stages and using digital tools:

This process can be broken down into modules and adapted to each school's constraints:

- Depending on the time available to apply the YESict method
- Depending on the material and level of digital tool use by the teachers and students
- According to the teacher's intention to prioritise one phase over another
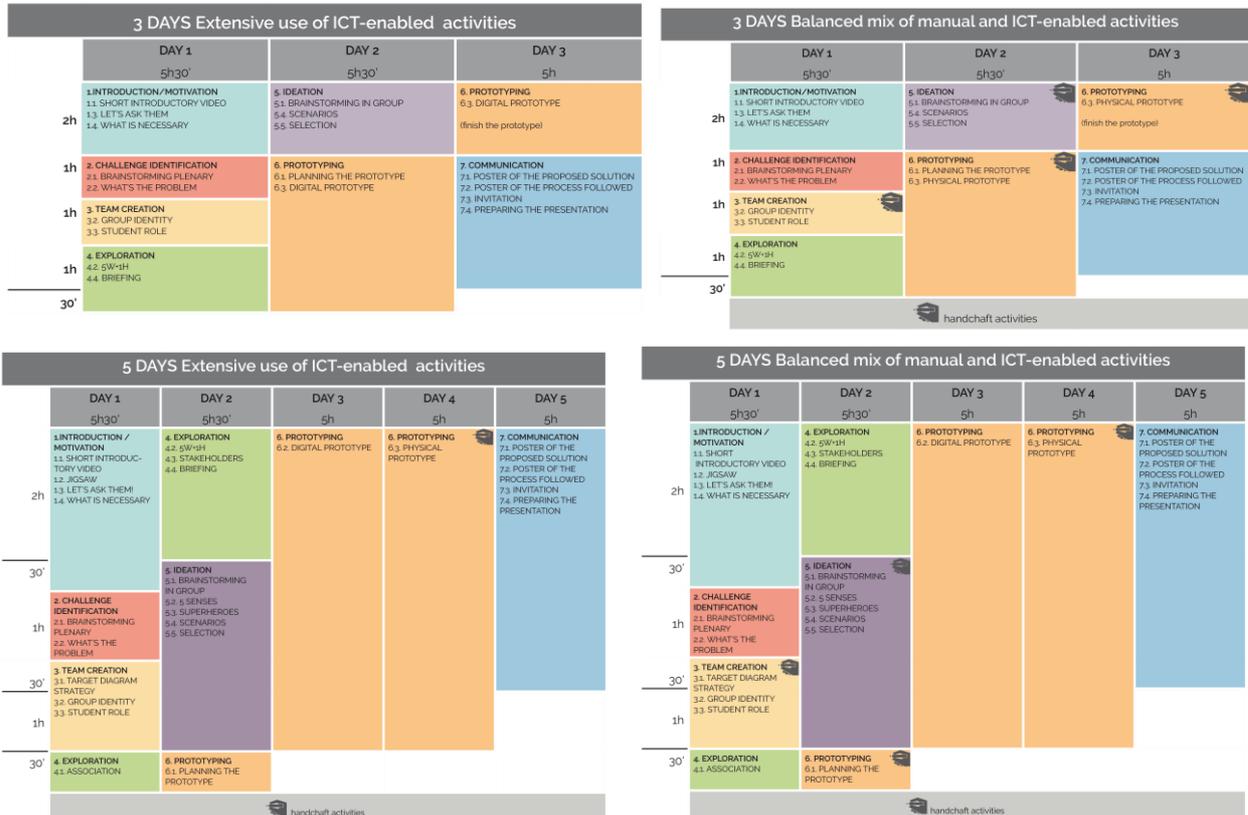
1.1.5 Use of digital tools and pedagogic material

Range of digital tools proposed in the YESict methodology:

- Online access to the YESict tool box (http://yesict.eu/);
- A Google Drive space recommended to synchronise communication between students, collaboration and sharing;
- Videos to motivate students and contextualise entrepreneurship;
- Google Docs models to carry out activities;
- Lucidpress to create communication material;
- Digital design tools (Sketchpad, Tinkercad) to create new designs.

All the digital tools on offer are optional and can be replaced entirely by tools used regularly by the teachers.

A teacher's guide was drafted by the consortium to explain the activities to be performed, present the different tools that can be used and propose resources to help any teachers who wish to implement the YESict programme among his/her students. This Guide is available on the YESict platform.

1.2 PROJECT SCHEDULE AND RESULTS
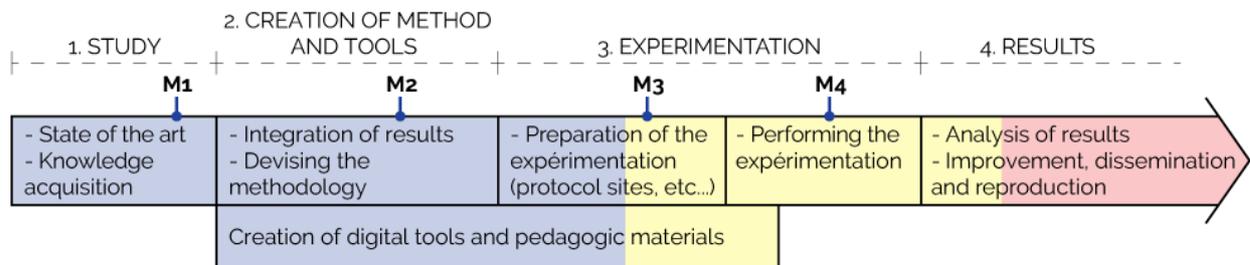
The YESict project is characterised by producing a range of deliverables throughout the following phases:

- **Study phase**: exploration and acquisition of knowledge;
- **Conceptualisation phase**: definition of the pedagogy, the pedagogic tools and the evaluation system;
- **Experimentation preparation phase**: definition of the experimentation protocol, features of the experimentation locations, methods for collaboration for the experimentation, contact with experimentation locations;
- **Experimentation and evaluation phases**: running the experimentation for the method and the tools, evaluation among students and teachers, adapting the method and tools, final analysis and recommendations, dissemination of results to replicate the model.

1.2.1 Study phase

In the first phase, an analysis was performed by 4 of the partners on existing programmes to develop entrepreneurship, plus a synthesis of the educational policies on entrepreneurship in each country. Furthermore, significant monitoring work was performed concerning digital tools, generally used within the framework of school teaching for students aged 11 to 15.

Then a report on the entrepreneurial skills among young people was drafted, with meticulous identification and subsequently classification work, to find out the different teaching concepts: entrepreneurship as content (knowledge of how the economy or a business works, etc.), entrepreneurship as the aim of teaching (example of the micro-company: skills to run a company), the entrepreneurial spirit (entrepreneurial skills that are useful for setting up an activity or a project).

Complementary interview work among people with specific profiles (entrepreneurs with children, entrepreneurship teachers, and ICT teachers) was performed to enhance the reflection.

1.2.2 Conceptualisation phase

In the second conceptualisation phase - drafting the method and pedagogic tools, the different forms of pedagogy that had been identified (intended for middle school students but also at university) underwent a SWOT analysis to choose the most appropriate basic method. Effectiveness for developing entrepreneurial skills was verified through analysing the results obtained during application among university students.

The method was then adapted to be used with middle school students by devising modules (stages of the pedagogic programme), each containing the following: pedagogic goal, description of the tasks to be performed by the student, the content to be provided by the teacher and the detail of skills being worked on.

Finally, the method was completed by integrating the 2.0 type digital tools plus elements to help set parameters for the "Google Education" platform for teachers to apply in the future.

In parallel, the overall project evaluation was envisaged after significant benchmarking and research work. So, it was decided not to restrict the evaluation model to assessing the entrepreneurial skills by the students. On the contrary, it is a case of not only evaluating the effectiveness of the pedagogic method by identifying the student's progress but also evaluating the method in itself by compiling qualitative perceptions and impressions from teachers and students. Consequently, the evaluation system, in its final version, beyond the criteria and performance indicators, will integrate qualitative questions and evaluation tools (focus group, individual interview, etc.).

The partners also began to work on devising digital and non-digital pedagogic tools to support application of the method.

1.2.3 Experimentation preparation phase

The experimentation protocol was defined in the experimentation preparation phase. Actually, the YESict project is an experimentation pilot project. So, beyond devising the pedagogic content and the tools to support the method, this referred to in-situ testing of this method and also measuring whether the ICT tools help to improve results concerning development of entrepreneurial skills.

This method also intends to be able to set up a new pedagogy that can cross cultural differences or at least identify any possible adaptations required so that it can be effective in any European country where it is applied.

To do this, during this period, the project team in charge of piloting the experimentation concentrates on defining and devising an experimentation protocol. Consequently, research work was carried out to:

- Identify and analyse pedagogic experimentations
    - o In middle school, high school, universities, etc.
    - o And/or using ICT tools
    - o And/or aiming to develop entrepreneurial skills
- Identify and study examples of example protocols
    - o In schools
    - o And/or digital tools
    - o And/or development of entrepreneurial skills
- Run a "benchmark" analysis of the experimentation evaluation methods

It was particularly delicate to perform these tasks as it is possible to find documents where information on presenting experimentations, details on devising the protocols, the methods for evaluation and/or experimentation processes are much more confidential, or even non-existent. Actually, most of the examples refer to the term "experimentation" although not in its "scientific" acceptance (pure sciences) but in its more generic acceptance of "testing something new".

The lack of scientific method in the background of these experimentations therefore required the project team to take more time to devise an original protocol concept.

So the team consulted resource persons (an active teacher, already organising experimentations on digital tools, an expert sociologist, running experimentations for several years on developing skills, an expert researcher on the psychology of creativity) to help their reflection process.

In parallel with this "theoretical" aspect, the analysis and synthesis tasks, in parallel with the discussions with the project partners, have made it possible to define the experimentation conditions, namely:

- The types of schools in which to set up experimentations
- The age of the students that will be subject to the experimentation
- The duration of the experimentation (2 days)
- The skills that will be developed (creativity)

These different tasks helped to draw up an initial experimentation guide plan. In its final version, this guide takes the role of accompanying the different partners to set up experimentations on their respective territory.

1.2.4 Experimentation and evaluation phase

An initial experimentation campaign took place in spring 2017, for which the observations and results have allowed a stage for redesigning the proposed tools and process.

A second experimentation campaign took place in spring 2018, allowing a final evaluation of the project impacts.

These two experimentation campaigns in real conditions allowed us to:

- Measure the effectiveness of the pedagogic method

- Assess the relevance of the method and tools by teachers

- Check that the tools and method are appropriate for the students

- Allow continuous improvement of tools and the method

In the end, 316 students and 23 teachers were involved in the YESict project, in 7 schools in Cyprus, Spain, Denmark and France.

	Cyprus	Spain	Denmark	France	TOT
Schools	2	1	1	3	7
Teachers involved	6	6	4	7	23
Participating classes	2	3	2	7	14
Students involved	44	57	46	169	316
Age of students	11-12 years 13-15 years	12-13 years	12-13 years	11-12 years 14-15 years	

These experimentation campaigns required many hours of work and exchange with the schools:

- 7 hours of training for the teachers;
- 11 to 13 hours of experimentation of the method and tools in class
- 2 to 3 hours of evaluation of skills and perceptions before the experimentation
- 1 hour individual interview with the teacher after the experimentation
- 2 hours of focus group for students in the first campaign

2 DESCRIPTION OF THE EVALUATION

2.1 FEATURES OF THE EVALUATION

2.1.1 Methods

A combination of training and summary evaluation to be applied for the YESict project.

The training evaluation examines the process by which the YESict programme was applied and modified within the schools, with the precise aim of identifying how to improve the programme. It identifies how and why and in which conditions the programme was successful, or not. The results of this evaluation must provide valuable information on aspects such as planning and design of the programme, as well as on the content and teaching methods used.

The comments and opinions of the teachers who applied the YESict programme and the students who followed it were compiled regarding different aspects of the programme such as:

- a change of attitude regarding the spirit of enterprise;

- knowledge of the questions covered in the programme;

- opinions on improving skills;

- the level of satisfaction regarding lessons; and

- opinions on the ICT tools used during the programme.

The summary evaluation or impact evaluation is concentrated on the results obtained by the entrepreneurial programme. It is carried out by assessing the participants' (teachers and students) entrepreneurial skills level after the programme. It requires an evaluation of what would have happened if the programme did not exist.

2.1.2 Choice of tools

On the basis of the results from the documentary research on the methodologies and the evaluation tools for the training programmes on entrepreneurial skills, different skills were used to compile the relevant qualitative and quantitative data.

When devising the evaluation model, an effort was made to create an evaluation process that fits the spirit of the pedagogic methodology.

So, as a result of the initial experimentation campaign, the discussion and focus groups were used to compile comments from participating students.

Taking into account the teachers' quantity of work during the experimentation, it was decided that teachers could select a group of students at random to assess their skills instead of evaluating the whole class. (*Report O9_experimentation report-1*).

So, discussion groups composed of samples of students who had participated in the YESict programme allowed students to share their experiences and their perception of the programme and to develop ideas to solve problems or improve the programme, which was very useful before the phase to redesign the tools and the application process for the pedagogic method.

Subsequently, as a result of the second experimentation campaign the questionnaire tool was used to compile data to measure the impact, administered on line by autocomplete. This technique required rather simple and clear questions as it is not possible to check whether the person answering has understood the question as intended. Furthermore, it can reach a large number of recipients quickly and avoids the risk of interviewer-bias influencing the reported answers.

The standardised questionnaire also allows answers to be compared.

To assess the entrepreneurial skills of students before and after the experimentation, the sections created by the European Commission Common Research Centre found at this address *http://publications.jrc.ec.europa.eu/repository/bitstream/JRC101581/lfna27939enn.pdf* were used.

On the basis of these sections, sub-skills were selected by the partners with the most relevant levels for the project's needs.

2.2 EVALUATION PROCESS

2.2.1 Goals

The goals of the evaluation implemented within the YESict project are to:

1. Compile comments to improve teaching.

2. Compile data to improve methodology or tools.

3. Assess the effectiveness of the methodology and the tools.

4. Detect, assess and guide skills acquired by the children during the learning process.

5. Check compliance of the final goals.

2.2.2 Implementation

To meet the aforementioned goals and objectives, a double evaluation process was implemented within the framework of the YESict:

- An evaluation of the students' skills to measure the progression of learning behaviour and entrepreneurial attitudes among the students;
- An evaluation of the devised innovative methodology, by the teachers:
    o To check the relevance of the pedagogy and help it move forwards,
    o To measure the quality of the tools and how easy they are to use.
    o To assess the impact on the teaching dynamics,
- An evaluation of the methodology by the students for the same reasons and to check the point of integrating the digital tools.

This refers to measuring the effectiveness of the innovative methodology being developed. The skills evaluation part was based on:

- An *ex ante* evaluation of skills and attitudes among the students to assess their entrepreneurial skills through different types of questions (multiple choice, true/false, quiz). It assesses representations of entrepreneurship among children and their perception of entrepreneurship, entrepreneurs, companies, etc. An evaluation of their personal positioning for entrepreneurship is also analysed;
- An *ex post* evaluation of the skills and attitudes of the students to assess entrepreneurial skills using the same types of exercises. It measures their leanings towards entrepreneurship and their interest in setting up their own company. It also measures their "progress" on the matter.

An evaluation of the teachers was also performed before and after implementing the methodology in the experimentation phase, in order to know how they perceive entrepreneurship and assess their knowledge on the subject.

3 MAIN LESSONS LEARNT FROM THE EVALUATIONS

The different experimentations carried out and described above have provided many useful lesson, 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.

3.1 THE PERCEPTION OF ENTREPRENEURSHIP AMONG STUDENTS, TEACHERS AND THEIR FAMILIES.

3.1.1 The students

The students' perception regarding the spirit of enterprise was assessed BEFORE and AFTER implementing the YESict programme. The questions for data collection included three negative statements and three positive statements on entrepreneurs and entrepreneurship.

1. Gender, age, country, school
2. What do you think of when you hear the word "entrepreneurship" or "entrepreneur". (1=Disagree completely / 5=Agree completely)   An entrepreneur is someone who tries to change the world positively / Entrepreneurship is not an environmentally-friendly activity / An entrepreneur is someone who only thinks about profit / An entrepreneur is a creative person who creates their own job / Entrepreneurship encourages you to take risks and constantly create/imagine new solutions / An entrepreneur is someone who benefits from other people
3. Would you like to set up your own business in the future? Yes / No
4. I already do something where I act like an entrepreneur Yes / No
5. If so, please give an example
6. If you envisage setting up your own business in the future, please indicate, A) the type of activity, B) why you have chosen this activity, and C) who encouraged you or inspired this topic.
7. If you do NOT wish to set up your own business in the future, can you explain why? Give reasons for your decision.
8. What is your opinion on…? (Poor opinion / No opinion / Good opinion)   Entrepreneurs who work for themselves / Entrepreneurs who run a large company

For the question on their perception of entrepreneurship and entrepreneurs, the students were asked to choose their level of agreement with the statements on a Likert 5-point scale (1 disagree completely - 5 agree completely).

According to the answers provided, **overall, participation in the YESict programme had a positive impact on the students' perception of entrepreneurship.** Nevertheless, these results must be interpreted carefully, as certain students might have chosen their answers randomly.

"An entrepreneur is someone who tries to change the world positively," "An entrepreneur is a creative person who creates their own activity, their own job," "Entrepreneurship encourages people to take risks and constantly create/imagine new solutions," are the statements that students think of when they hear the worlds "entrepreneurship" and "entrepreneur" and that received an interesting approval progression rate between the before and after participating in the YESict programme.

When they are asked whether they would like to set up their own business in the future, while 39% envisaged this BEFORE following the YESict programme, 60% state this AFTER following the programme.

Spontaneously, around 34% of students have declared that they were positively influenced by the YESict programme regarding their future entrepreneurial activity and in terms of envisaging setting up their own business.

20% of students declared that they were negatively influenced and that they would not set up a business in the future. Although this theoretically seems to be a negative impact of the programme being implemented, based on students' comments in the open questions concerning the reasons for their decisions, most of them have answered that they have become aware of an entrepreneur's responsibilities and that this is not an easy job. Their decision after participating in the YESict programme seems to be more mature and justified.

When the students were asked who influenced the type of business they would set up in the future, the most usual answers were their parents and members of their family, a teacher who acted as a mentor and their personal interests. It is very important to highlight that in cases where a student's parents have entrepreneurial jobs, they were more open to setting up a business in the future. So it seems that family or entourage can play an important role in entrepreneurial attitudes among children and perhaps a programme specially designed for parents could improve positive entrepreneurial perceptions among young students still further.

3.1.2 The teachers

The evaluation of teachers' perceptions regarding entrepreneurship is based on a questionnaire comprising 6 open questions:

1. Country, school
2. In your opinion, what is entrepreneurship?
3. Do you think that there is a difference between "being an entrepreneur" and "having entrepreneurial spirit"? If so, can you explain what you think the difference is?
4. Can entrepreneurship be taught? What skills does this include?
5. Do you include any of these concepts in your lessons? How? (Please give some examples)
6. Can entrepreneurial spirit/entrepreneurial skills be measured? Do you know how?
7. Anything else to add?

14 answers to this questionnaire were obtained from teachers.

- In answer to the question "in your opinion, what is entrepreneurship?", answers vary but it seems that the common denominator is that entrepreneurship is a matter of business and having the necessary skills (particularly creative skills).

(14 answers) "Carrying out a project alone or in a team / Having the right attitude or skills to run a project properly / Creating something using creativity / Finding the best solutions to a problem or a challenge by using creativity / The spirit of enterprise / The capability to take on projects / Entrepreneur: the person who is at the origin of the project (head of the business?). Activities around the business. Legal function: society, cooperative, association, self-employed... The business can produce goods, sell goods, provide services... / Managing a company set up to develop an idea, a product and managing to make it profitable and generate a profit. / The business world / This refers to aptitudes to run a business properly / An activity that concentrates on selling products or services / This is a type of company that exists all over the world / Entrepreneurship is the operation of a company / A business activity"

- Regarding the possible difference between "being an entrepreneur" and "having entrepreneurial spirit", it seems that an entrepreneur and the spirit of enterprise are two different things.

  "Being an entrepreneur" would be a sort of occupation (a profession), while "having entrepreneurial spirit" encompasses everything that can be taught at primary or secondary school to obtain an "attitude" leaning towards the spirit of enterprise.

(14 answers) "Yes, I think it's different. I think that a person with no spirit of enterprise could be an entrepreneur but it would be more difficult for them to continue working or make progress. / Attitude / Certain people have a more developed spirit but I think that you can be an entrepreneur if you practice / Yes, spirit was not worked on, it's within you. And if you do nothing with it, it can disappear. And to be an entrepreneur, we should always work, even with people who have spirit of enterprise. Yes, the assignment approach is determined by attitude. I don't know if there is a difference. / I don't know anything about it. / Perhaps. / It is highly likely that an entrepreneur has a business. Having the spirit of enterprise means perhaps thinking like an entrepreneur but not necessarily having a business. / I understand "being an entrepreneur" as "being the head of a company". Having entrepreneurial spirit is a marker for potentially committing to projects without necessarily running the project. / Yes, I think that there is a difference. In my opinion, an employee can have "entrepreneurial spirit" if he/she has an overall vision of things, takes the initiative to develop the company… / An entrepreneur is alone and does not need to succeed; an entrepreneurial spirit encompasses several persons around an economic or social project / Yes, for me "being an entrepreneur" is being the head of a company but you can "have entrepreneurial spirit" without being at the head of a company, the idea of the spirit, I think, is taking initiative. / The difference lies in the final goal and skills that are mobilised to meet this goal."

- In view of the answers to the question on whether entrepreneurship can be taught and which skills this should include, the qualitative answers comply with the questionnaire answers for the teachers' opinion on the YESict programme. The teachers think that entrepreneurship can be taught like a classic subject from general teaching, but also transmitted through training/action and coaching, perhaps then taught across several disciplines. One observation on the importance of funding this teaching was highlighted.

(14 answers) "Yes, I think that you can teach it. I think that, to be an entrepreneur, you have to be ready to do something that seems to be far off or difficult to attain, you have to be courageous, competent, hard-working, etc. / Yes, you can teach it. Attitudes rather than skills. Mainly motivation and perseverance / Yes. Creativity, capacity to turn thoughts and ideas into actions. / Yes. Creativity, not judging a book by its cover, no prejudices, teamwork, accepting answers and opinions from others, being capable of overcoming obstacles, patience, staying positive, etc. / Yes, all the skills can be taught and trained. / It can be taught to anyone who is interested in setting up a business. / It is mainly taught to university students. Someone who should be good at finance. / It's probably possible, but I don't know how. On the skills, risk-taking perhaps and financial skills. / There are activities from the Pedagogic Institute on entrepreneurship for students. Therefore I suppose that it can be taught, even if I don't know how. / Working on joint projects. Taking a position, a role, in this business. Discovering which role to take in the work groups following our skills and our concerns. / Yes, it can be taught but the framework would be important, always the problem of resources (time, funding, etc.) / Organisation, managing needs, persons, anticipation of teamwork. / Yes, it can be taught by encouraging initiative-taking situations. / Specific teaching as in the disciplines that are currently taught cannot be envisaged. Doing this would involve changing the teaching methods and the pedagogy used. Certain cross-discipline skills are already developed in some disciplines."

- There are multiple answers to the question on including the spirit of enterprise in other school subjects. It seems that the spirit of enterprise can be tackled in all sorts of teaching, particularly science classes that allow group work, different teaching, less lecturing and the "problem-solving" approach or even maths where some content will be useful for a future business owner.

(14 answers) "Yes, I try to make the students competent and hard-working. I try to teach them that to get results, you have to make an effort, and that the effort they make will have good consequences. / Currently, I'm not teaching it. / Yes, I give them different spaces and objects and using creativity, they have to realise what they are going to need at that time to design them. / Yes. Whenever I can. / Yes, in science classes. / Not really. / No. / Perhaps when we teach maths. It might be useful in the future for a student who wants to run a business. / No. / Yes, often within the context of group-work on reasonably long projects: robotic programming, manufacturing technical objects, presentation of productions, etc. / No, a few little things as the main teacher when we talk about work experience, group work is a complex task, you need a knowledge sheet to run the evaluations. / Sometimes, when proposing complex tasks: several documents are offered and you have to answer an unguided question, the student must know how to use the documents, sort the information, set up an answering strategy and explain the business approach to solve the problem. / Collaboration, helping each other, problem-solving are all skills and capabilities developed during the group activities."

- The question on "measuring the spirit of enterprise" would perhaps have been more appropriate for a face-to-face interview rather than a questionnaire. Nevertheless, the answers provided seem to go in the direction of a method for accurate measurement, QCM type.

(14 answers) "I suppose so. Perhaps when you work on an entrepreneurial project. / I believe that it can be measured but I don't know how. / Yes. Raise awareness among students concerning what they have done and by means of observation. / Yes, up to a certain point, in certain minimal skills. But it would not be possible to measure something like the product. Maybe the people evaluating wouldn't know how to do it. / Yes, the process and the results can be measured. / This is difficult inasmuch as some students will be more or less comfortable depending on the chosen function. But this might be interesting help for our students in their careers guidance. / I imagine so but I don't know how (growth of a company? Number of employees? Turnover / Audit / We're bound to be able to measure them, maybe using tests (QCM) / We can assess entrepreneurial skills by identifying the different expected levels. / I'm not familiar with that. / I don't know / I don't know / No, I don't know."

Teaching the spirit of enterprise and impact on teaching

All the teachers state that entrepreneurship can be taught.
"Yes, it's possible. By using examples from the students' everyday lives. In this way, the spirit of enterprise might be more familiar for them."
"Yes, of course. Learning by doing is a good way of showing that the spirit of enterprise must be taught."

Everyone agrees on the learning capacity induced by the YESict programme experimentation, its effect on future teaching:

"Promoting collaboration between students was the most valuable aspect in my opinion. The education system is very competitive. Seeing the students cooperating was the best thing during the lessons."

"I liked the social entrepreneurship aspect. Every time we talk about recycling, I could initiate them in social entrepreneurship."

3.1.3 The families

The families of students who took part in the YESict programme were asked about their perception of entrepreneurship.

This evaluation was carried out in the form of a questionnaire survey, sent to the parents either by email or put on the school Intranet. The survey collected information from 47 people, 76% women and 13% entrepreneurs.

1. Gender, age, level of education
2. Are you an entrepreneur / head of a company?
3. Did you know that your child has taken part in the YESict project, based on innovative pedagogic methods?
4. If so, what did you say to your child about it?
5. More particularly, have you had the chance to talk about entrepreneurship with your child?
6. In your opinion, is it important to teach entrepreneurship and its skills at school? (1 = not at all important, 5 = very important)
7. What is your own opinion on entrepreneurship?
8. To what extent do you agree with the following statements: An entrepreneur is someone who tries to change the world positively / Entrepreneurship is not an environmentally-friendly activity / An entrepreneur is someone who only thinks about profit / An entrepreneur is a creative person who creates their own job / Entrepreneurship encourages you to take risks and constantly create/imagine new solutions / An entrepreneur is someone who makes the most of other people
9. Would you like your child to become an entrepreneur later on?
10. Please feel free to add any comments or suggestions on the YESict programme in which your child has participated.

Perception of entrepreneurship

- 51% think that entrepreneurs are people who try to change the world positively. 25 % are not sure and 23 % do not agree.
- 65% think that entrepreneurs are environmentally-friendly. 25% are not sure and 21% think that entrepreneurs do not respect the environment.
- 57% do not think that entrepreneurs are only interested in money. 29% are not sure and 12% think that entrepreneurs are only in it for the money.
- 81% think that entrepreneurs create their own jobs. 13% do not think this and 6% are not sure.
- 85 % agree to say that entrepreneurship is a matter of risk-taking and developing new solutions. Only 10% do not agree.
- 65% do not think that entrepreneurs benefit from other people. 12 % think that they do.

Importance of teaching entrepreneurship in schools

80% of parents asked think that teaching the spirit of enterprise is important for their children's education. 0% think not.
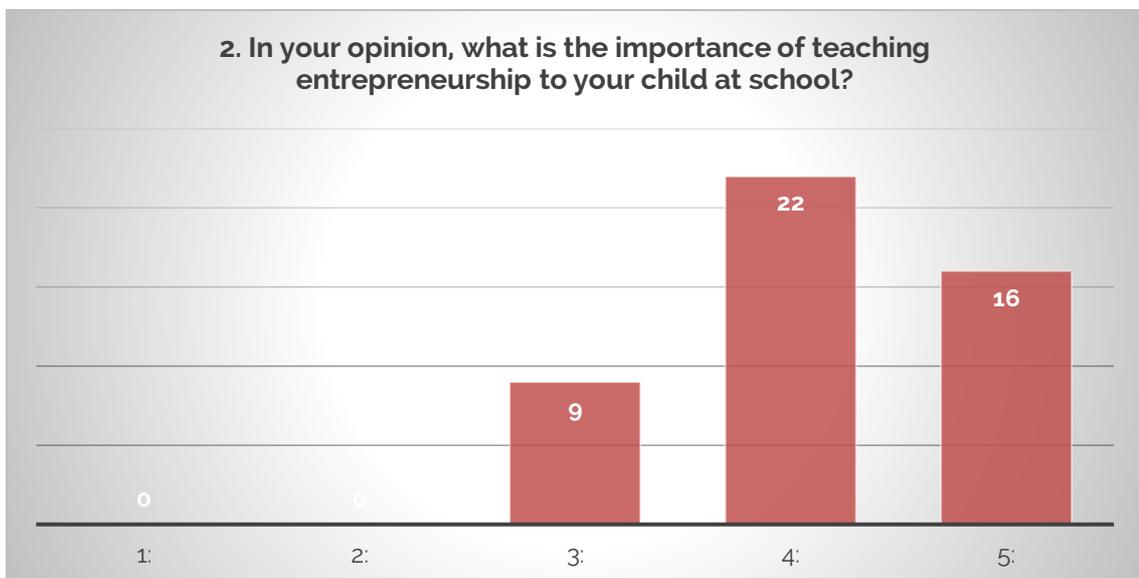
1 = not at all important, 5 = very important

Entrepreneurial aspirations for their children

34 % would like their children to be entrepreneurs. 11% would not and 55% don't mind. This rate is interesting when compared to the fact that 80% think that teaching the spirit of enterprise is important.

64 % discussed entrepreneurship with their children.
"It's not very positive because most entrepreneurs, particularly in large companies, are not concerned about people and the planet where we live. Of course there are exceptions, but in general they don't care."
"I feel positive about entrepreneurs. Particularly during the recession, I got a better understanding of their role for the country. (Cyprus)"
"It is essential to have entrepreneurs in our country, we should support them and help them keep their businesses going. (France)"
"Essential for our economy, they create jobs and provide innovation. (France)"

Knowledge of the YESict programme

89% know that their children have taken part in the YESict experimental programme.
"Yes, we knew about it. She was very enthusiastic about the class. She liked the activities and doing something new."
"We talked about it. She said that she learned new things about entrepreneurs and businesses. "
"He was very happy to come home and tell us that his project was going ahead and that they were responsible for making decisions. "
"I'd like my child to take part in a programme like this again. It would be good to also concentrate on female entrepreneurship and give girls the chance to become entrepreneurs. In countries like Cyprus, female entrepreneurs are not respected very much. Entrepreneurship is, above all, a man's world. "

## 3.2 THE PERCEPTION OF THE YESICT PROGRAMME AMONG STUDENTS AND TEACHERS

3.2.1 The students

The evaluation of how teachers felt about the programme is based on an on-line questionnaire that was translated into the languages of the different partner countries. The questionnaire included closed and open questions.

1. Gender, country, school, class
2. Please indicate your general level of satisfaction concerning... the proposed programme / the digital tools used (Very disappointed to Very satisfied)
3. Give your opinion on the following phrases: "Thanks to the programme, I am now capable of... "   Working better in a group: coming to an agreement, listening to others, pooling ideas / Accentuating my skills and identifying my own limits, believing in myself / Putting my own ideas across better, not only in the group but also outside / Understanding how an business is organised / Building/manufacturing something that I have devised or designed myself / Using new digital tools to work on my ideas (Disagree completely to Agree completely)
4. Regarding the YESict Programme...   I appreciated taking part in the programme / It was easy to understand / The time devoted to the activities was sufficient (Disagree completely to Agree completely)
5. What would you improve in the YESict programme?
6. Tell us which ACTIVITY was the most...   ... FUN for you / ... DIFFICULT for you / ... EASY for you
7. Tell us about the DIGITAL TOOL that you used and that was the most....   ... EASY for you / ... DIFFICULT for you

As far as the level of student satisfaction with the programme is concerned, 52 % were satisfied or very satisfied with their experience. As far as the ICT tools used are concerned, 39% were satisfied and very satisfied and 52% were neither satisfied nor dissatisfied.

Concerning the skills that they have acquired or improved by participating in the programme, the majority of students agrees or agrees completely that there was an improvement thanks to the YESict programme in all cases, as shown in the graph below:
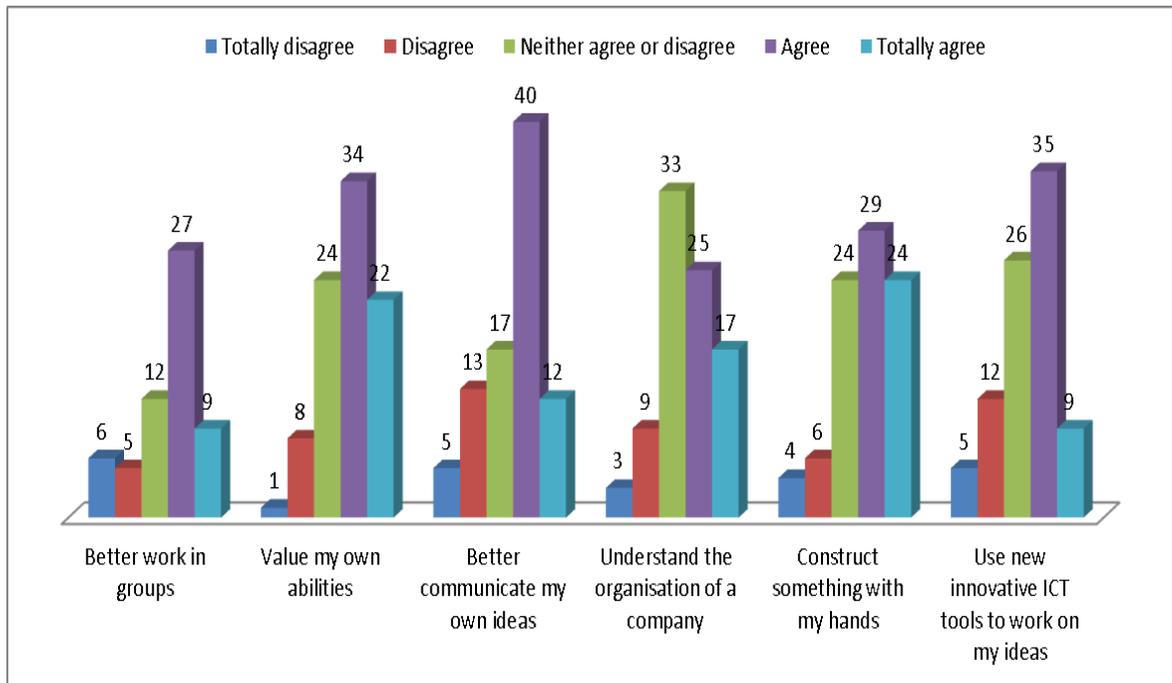
Most students agree or agree completely that the programme was easy to understand and they seem to have appreciated the class. Concerning the time to implement the activities, the majority suggested giving more time to the programme's different activities, clearly indicated in the closed and open questions. This observation is similar to the improvement suggestions made by the teachers.
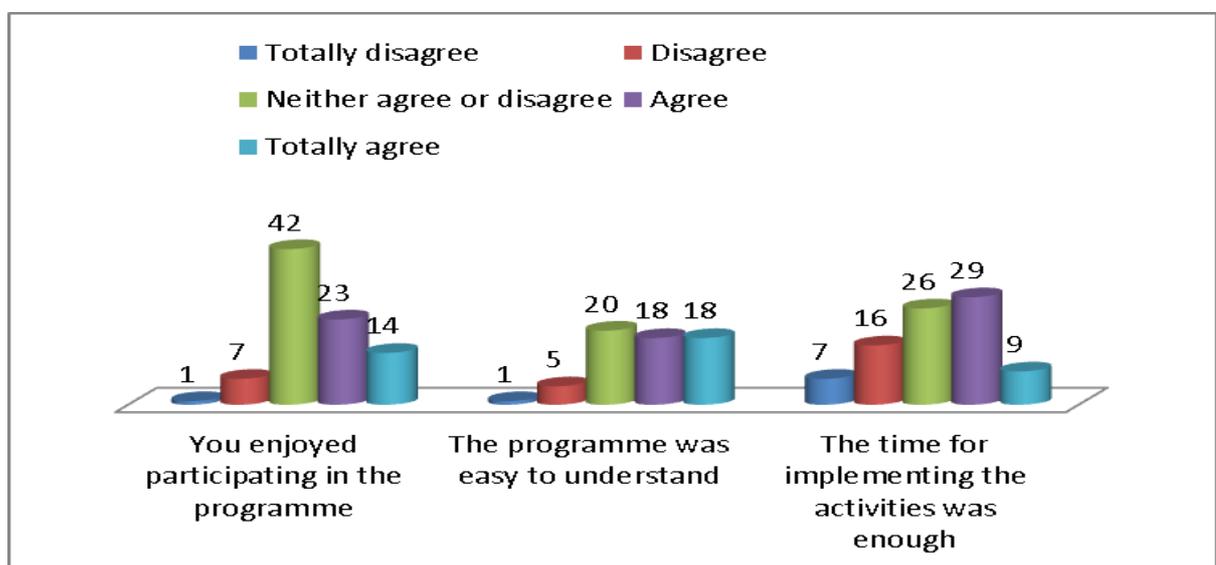
Regarding what might be improved in the programme, the students suggested the following:

- Having more time to implement the programme, particularly for the prototyping phase,

- Having a greater variety of materials for the prototyping phase (the plasticine was the least popular material).

- Being in the same team as friends might improve group work.

The most fun activities for the students were the physical and digital prototyping phase and presenting their ideas.

According to the student answers, the most difficult thing for them was working in a group with students who were not their friends.

Certain materials used for prototyping, such as plasticine, were not popular for building the prototype.

Although certain students found it hard to create the physical prototype, they continued to consider this activity as the easiest. We might think that if plasticine had not been used, this activity would have been just as easy for the majority of the students.

ICT TOOLS

The most user-friendly digital tools for the students involved shooting videos and taking photos, followed by using Google Drive, constructing the prototype using digital tools.

The majority of students did not find the digital activities difficult. In spite of everything, some students mentioned that they found it hard to do the written work or concentrate on the activities using digital tools.

In general, the programme was assessed very positively by the students and they appreciated learning differently.

3.2.2 The teachers

The evaluation of how the teachers felt about the programme is based on a questionnaire comprising 15 open questions: 11 answers were obtained.

1. Please evaluate your general level of satisfaction with the YESict educational programme on entrepreneurship (1: Very dissatisfied - 5: Very satisfied).
2. Please evaluate your general level of satisfaction regarding the ICT tools you have used (1: very dissatisfied - 5: very satisfied).
3. Thanks to the programme, you are now capable of: (5 boxes to tick)
4. I liked taking part in the programme.
5. The programme was easy to understand.
6. Enough time was devoted to the activities.
7. Which activity was most fun for you? Please explain why.
8. Which activity was most difficult for you? Please explain why.
9. Among the ICT tools that you have used, which was the most useful to implement the YESict programme?
10. What would you improve about the programme?
11. After having followed the YESict process, have you changed your mind on what the spirit of enterprise might be?
12. Do you think that entrepreneurship can be taught? If so, how?
13. Are you going to include any of these concepts in your lessons? Which ones?
14. If you intend to keep teaching entrepreneurship, what sort of help would you ask for? (How to teach the concepts, definition of the lesson, evaluation, etc.)
15. Anything else to add?

General satisfaction and appreciation

- **87.2% of teachers who answered the questionnaire state that they are highly satisfied with the YESict programme, 94.5% declare that they liked participating in the programme** (question 4).
- The qualitative answers to question 7 (Which activity was most fun for you?) confirm that the prototyping phase was the most fun, with the superhero exercise (to make teams).

"I liked the prototyping phase best."
"The superheroes. It's a concept that I'll use in my class."

- The most difficult activities in the YESict programme (8. Which activity was most difficult?) seemed to be the exploration and conceptualisation:

"Exploration and conceptualisation. The students were frustrated because they found it hard to concentrate on the phases and wanted to start problem-solving."
*"Exploration. The students were a bit worn out by this activity."*

General satisfaction regarding the digital tools.

- **78.2% of teachers answering the questionnaire state that they are very satisfied with the ICT tools implemented in YESict. However, it seems that not all the teachers taking part in the YESict programme used the ICT tools made available to them.**

Understanding of the programme's purpose and stages

Concerning the effects induced by participating in the YESict programme and the programme results, the data is as follows:

3. Thanks to the programme you can now::

63,6%	100,0%	27,3%	45,5%	45,5%
Explain better to students what entrepreneurship is	Promote entrepreneurial skills to your students	Use innovative ICT tools for teaching entrepreneurship	Assess the development of entrepreneurial skills to students	Integrate entrepreneurial transversal skills in the school model teaching"
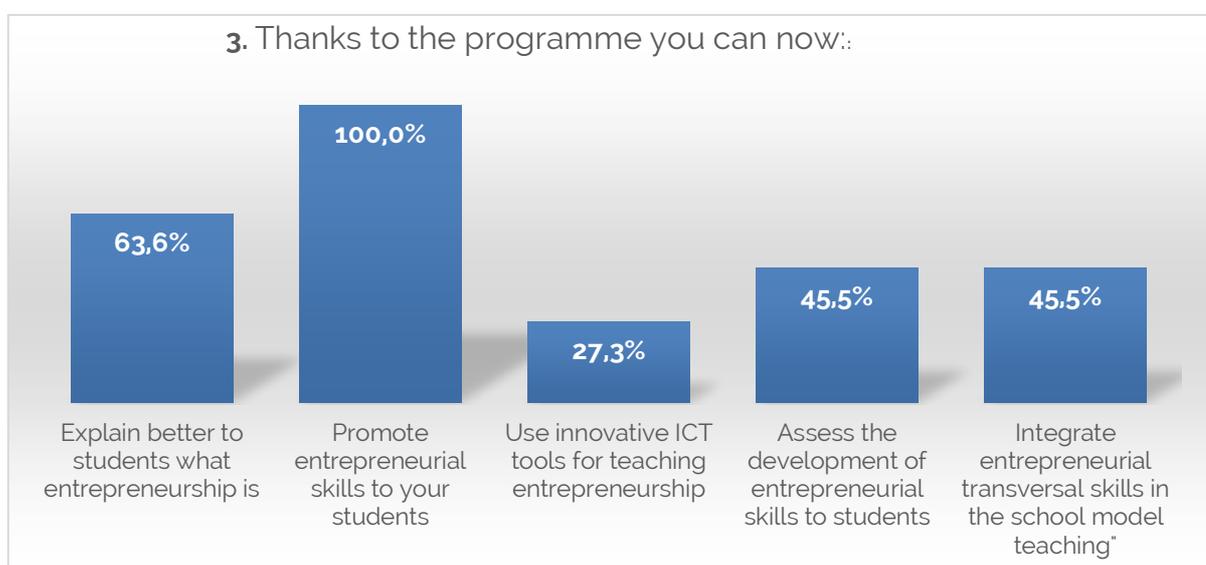
- This data is supported by the answers to question 11 (After having followed the YESict process, have you changed your mind on what the spirit of enterprise might be?), stating that 64 % of them have changed their opinion on entrepreneurship.

Overall, the programme manages to produce results on all the parameters, but the ability to promote entrepreneurial skills is the main result. The second is the capability to explain the spirit of enterprise. The ability to use the ICT tools remains the weakest result, perhaps due to a lack of understanding of the programme (89.1% answered that the programme was easy to understand (question 5)) and/or a lack of time to carry out the activities.

Actually, 69.1% of teachers estimated that the time given for each activity was too short and this can be correlated against relatively low satisfaction regarding the proposed ICT tools.

Furthermore, answers to question 10 on the improvements expected on the programme concerning the modification of the programme timetable (duration of each activity) and above all having more time to complete it.

These declarations are also highlighted by declarations from question 14:
"More training on how to apply these programmes with younger students. "
"Perhaps having more time to implement these initiatives."

3.3 THE IMPACT ON THE STUDENTS' ENTREPRENEURIAL CAPACITIES AND THE PROGRESSION OF THEIR SKILLS/ATTITUDES (BEFORE / AFTER)

The YEsict programme selected four general skills (creativity, problem-solving, self confidence, collaboration) among the 21st century skills to assess the students' entrepreneurial skills.

196 students answered 24 questions divided as follows:

Creativity: 6

Problem-solving: 5

Self-confidence: 6

Collaboration: 7

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1. CREATIVITY
I am curious about new things / I imagine other ways of using things or objects / I have sufficient abilities and skills to tackle new situations / I am capable of seeking new solutions to solve a problem / I am capable of developing innovative ideas and testing them / I am capable of putting across what I know, my ideas and solutions on different matters /

2. PROBLEM-SOLVING
I tackle problems with curiosity / I am capable of finding several solutions to a problem / I see opportunities where others see problems / I am capable of encouraging others to tackle problems creatively / I am capable of taking initiatives to solve problems that affect the people around me /

3. SELF-AWARENESS / SELF CONFIDENCE
I am aware of my strengths and weaknesses / I am capable of successfully finishing the tasks that are entrusted to me / I am capable of achieving new things thanks to my skills / I am capable of convincing people to change situations / I am capable of helping others identify their strengths and weaknesses / I am capable of carrying out what I devised and planned regardless of the obstacles

4. COLLABORATION
I am capable of listening to others / I am capable of expressing my ideas / I am capable of participating actively in a work group / I am capable of making commitments when necessary / In a team, I am capable of helping others to do their best / I am capable of managing conflicts within a team / In a team, I am capable of helping make a decision

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The student answers each of the 24 questions using the Likert scale. The Likert scale uses a scale from 1 to 5 giving the person answering the following possibilities:

Disagree completely	Do not agree	Neither agree not disagree	Agree	Agree completely
1	2	3	4	5

3.3.1 Overall impact

It seems that the YESict programme has a positive overall impact on students' entrepreneurial skills.

Creativity, problem-solving and self confidence had a positive impact, while collaboration skills reduce the overall result a little. It therefore seems that the programme is best for increasing the first three skills while the skills revolving around team spirit are questioned.

3.3.2 Creativity

I am curious about new things 0.18%.

I can explore new ways of using existing resources 9.84%.

I can experiment with my abilities and skills in situations that are new for me 6.41%.

I can search for new solutions depending on my needs 8.76%.

I can develop innovative ideas and test them 10.86%.

I can transfer knowledge, ideas and solutions in different fields 6.05%.

In general, it seems that the programme has had a positive impact on all creative skills, ranging from curiosity to experimentation of skills, including innovation and knowledge transfer. Curiosity receives the lowest score, whilst the ability to develop new ideas and take tests receives the highest score.

Without being able to draw a significant conclusion, it seems that the programme would do well to develop converging skills. It maybe comes from the more scholarly approach in the education sector. Curiosity is the main reason for the difference, although this is not reflected in the question of solving problems on curiosity.

3.3.3 Problem-solving

I tackle problems with curiosity 7.33%.

I can generate multiple solutions for a problem 6.37%.

I see opportunities where others see problems 9.79%.

I can encourage others to tackle problems creatively 11.79%.

I can take the initiative and tackle the problems that affect my community 5.59%.

The ability to solve problems is positive overall, and the second most positive. The capacity to encourage others to tackle problems creatively is the best score. The last question has the lowest score, maybe due to the class subjects. Some students worked with community challenges, while others have worked with the classroom as a subject.

3.3.4 Self confidence

I know my strengths and weaknesses 3.79%.

I can accomplish tasks successfully 11.14%.

I can create value by using my skills 11.68%.

I can influence people and situations for the better 12.03%.

I can help others identify their strengths and weaknesses 11.14%.

I can carry out what I imagined and planned, despite the obstacles 6.53%.

Self-confidence is the most positive. The capability to accomplish tasks, create value and influence people positively is the best score. Knowledge of individual strengths and weaknesses is the lowest.

3.3.5 Collaboration

I can show empathy towards others -2.65%.

I can express my ideas confidently 1.91%.

I am capable of taking an active part in teamwork -3.79%.

I am capable of making compromises when necessary -8.75%.

I am capable of helping others do their best within a team -4.58%.

I am capable of managing conflict within a group -0.32%.

I can contribute constructively to making decisions in the group -0.53%.

Collaboration is the only skills that has a negative impact. All the questions are negative, with the exception of expressing their own ideas.

It seems that the skills acquired in creativity and problem-solving are questioned within a team context, everyone wants to have their say. Particularly, the capability to make compromises and support others in a team is negative.

Overall, the programme has improved students' skills, particularly:

- Influencing people and situations positively
- Encouraging creativity
- Creating value with their own skills
- Completing tasks

"Individual" skills receive a further positive impact over collaboration skills: the teamwork skills are affected (little capability to manage conflicts, work as a team, support others in a team, make compromises).

CONCLUSION

Overall, the impact of the YESict programme is very positive:

FOR THE STUDENTS:

- After following the programme, they are twice as likely to envisage setting up their own business in the future; most state that they have been positively influenced to envisage setting up their own business or taking on an entrepreneurial activity;
- They stick to the programme and show great satisfaction regarding the group work, an impression of freedom and being able to "create", a feeling of having been listened to and valued, general awareness raising of their potential and their strengths and weaknesses.

The YESict method is appropriate for all ages and all student profiles. It helps remobilise students who are struggling at school, it questions the teacher/learner relationship, and gives the student autonomy, opportunities to take the initiative and for reflection/production, it reveals talents and helps students build themselves up as individuals.

FOR THE TEACHERS:

- The level of satisfaction regarding the YESict programme is very high. Many of them have changed their mind about entrepreneurship: they are now capable of promoting entrepreneurial skills among students, explaining the spirit of enterprise and entrepreneurial skills.
- The YESict programme questions pedagogic practices. It opens the door to a new teacher/learner relationship (learning by experience), requires cooperation between teaching pairs to manage programme sequences and to mix teams to complement each other better, proposes supporting each other with complementary teacher profiles.

The teachers bring the method into their professional practice, they observe their students from another angle and the activities where they do not expect just one right answer and give them the chance to talk about entrepreneurship and promote entrepreneurial skills.

FOR THE FAMILIES:

- The YESict programme is supported by parents who think that teaching the spirit of enterprise is important for their children's education. It allows dialogue with the children particularly regarding entrepreneurship.

It is now a case of encouraging teachers to transpose the YESict programme to other disciplines and include YESict in the schools' pedagogic strategy.

Beyond that, the partners are going to organise dissemination of the methodology among other schools and education decision-makers in their territories.

The project was new in terms of creating material to promote entrepreneurial skills among secondary students. The material that was developed included ICT tools that are not often used for teaching entrepreneurship.