Pilot experience

Experimentation and External validation

Intellectual Output 5 (REPORT)

CONSTRUCTION INHERITANCE

ERASMUS+ Programme
Key Action 2 | Call 2015
Strategic Partnership for VET (KA202)

Project Code:
2015-1-ES01-KA202-016031

Partnership:

- Fundación Laboral de la Construcción (Spain),
- Comité de Concertation et de Coordination de l'Apprentissage du Bâtiment et des Travaux Publics (France),
- Bildungszentren des Baugewerbes e.V. (Germany),
- Ente Nazionale per la Formazione e L´Addestramento Professionale Nell´Edilizia di Puglia (Italy),
- Centre IFAPME Liège-Huy-Waremme (Belgium),
- Centro de Formação Profissional da Indústria da Construção Civil e Obras Públicas do Sul (Portugal).

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PILOT EXPERIENCE

Experimentation and external validation of the App

Objectives

The main objective of the experimentally driven validation of the training system is to test and validate outcomes from a pedagogical, technical and technological point of view.

For that purpose, the pilot experience has included two main key actions, with specific evaluation objectives each:

a) Classroom assessment

✓ Usefulness of the educational resource to improve knowledge and skills.
✓ Increase understanding and communicating in classroom.
✓ Encourage learners' involvement and participation in classroom.
✓ Stimulation of learners' initiative, creativity and aesthetic sensibility.
✓ Reduction of training time and costs.
✓ Integration of theory and practice.
✓ Adjustment of learning materials to content.
✓ Adaptation of the training system to needs.
✓ Effectiveness in managing the classroom.
✓ Promote user motivation for lifelong learning.

b) Experts' assessment

✓ Accuracy of the learning outcomes.
✓ Adequacy and coherence of content design and organisation.
✓ Correct definition of objectives, contents and activities.
✓ Relevance of topics and training contents.
✓ Complementarity of training programme.
✓ Performance, usability and functionality of the educational resource.

Classroom assessment: pilot sessions with trainers and trainees

Each country has organized a trial using the educational resource -App Construction Inheritance- in order to know whether the tool is useful for students' learning, that is, if the trainees reach the expected learning outcomes after passing through the course.

To do so, some specific tasks have been carried out by each partner:

– **Selection of 10 participants per country**: Required profiles definition and recruitment.
– **Methodology for the experimentation and validation**: Designing test materials, user documentation and measurement instruments.

- **Management and implementation of the pilot training**: Scheduling, testing program guide for trainers and trainees, facilities, equipment, incentives for the participants, etc.
- **Monitoring and supervision of sessions and assistance for participants**.
- **Certificates and accreditation.**

After the pilot session at classroom, the App has been assessed by the two profiles that have intervened in the session: trainers and trainees. Results on the assessments have been gathered for validation and psychometric purposes.

Pictures
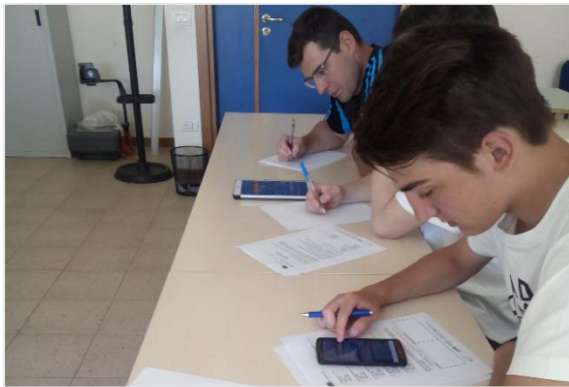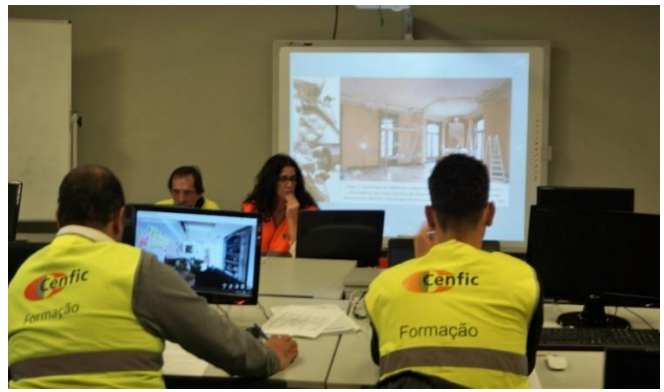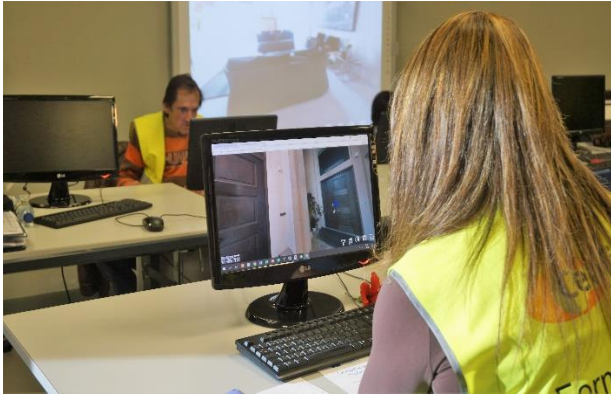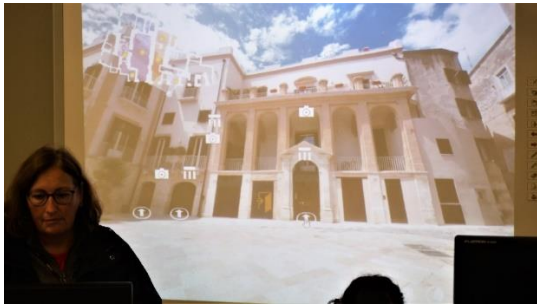
Trainees' evaluation. Results assessment.

   a)   Learning self-assessment
   - **Ex ante:** An evaluation before the beginning of the course, in order to know firsthand the level competences regarding to rehabilitation of buildings of each student.
   - **Ex post:** To quiz just at the end of the course, to see how well the students understand what you were trying to teach them.

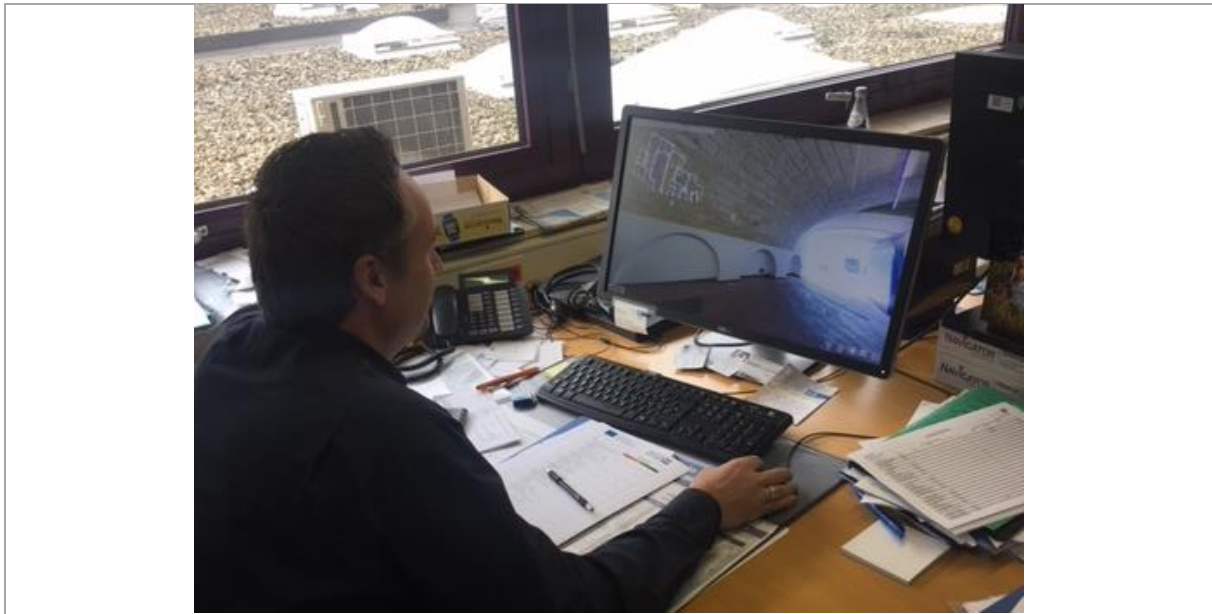| Topic	Average score	
	Ex-ante	**Ex-post**
1. Stone cutting	*5,3*	*5,7*
2. Brick walling	*5,6*	*6,9*
3. Shoring scaffolds	*5,4*	*6,6*
4. Structural lintels	*5,9*	*6,9*
5. Arch and vault elements	*5,2*	*6,0*
6. Staircases	*5,0*	*6,4*
7. Gable structure	*6,2*	*7,4*
8. Roof covering	*5,4*	*7,3*
9. Roof finishing	*5,8*	*6,6*
10. Roof encounters	*5,8*	*6,9*
11. Guttering	*5,8*	*6,4*
12. Sanitation installations	*6,3*	*7,0*
13. Roof plumbing	*6,4*	*6,7*
14. Seams and joints	*5,0*	*5,2*
15. Decorative masonry	*5,0*	*5,1*
16. Other decorative finishing	*5,2*	*5,5*
17. Decorative painting	*4,0*	*4,6*
18. Decorative fittings	*5,0*	*5,7*
TOTAL	*5,4*	*6,2*

   b)   Student satisfaction

Criteria	Evaluation Percentage of responses		
	☹	😐	☺
1 Did the content meet your expectations?	0%	7%	93%
2 Did this program promote ICT devices and applications ability?	14%	14%	71%
3 Did this program Inform young workers about vocational opportunities in construction industry professions environment?	0%	14%	86%
4 What is your overall assessment of the event?	0%	0%	100%
5 Can you practically apply the course material to your future work situations?	7%	14%	79%
6 will the course affect your ability to perform your job from now on?	14%	21%	64%

Criteria	Evaluation Percentage of responses		
	🙁	😐	🙂
7 Do you consider your interest on rehabilitation of antique buildings has increased?	7%	0%	93%
APP			
1. I think that I would like to use this app frequently	7%	14%	79%
2. I find the app unnecessarily complex.	43%	29%	29%
3. I think the app is easy to use.	0%	21%	79%
4. I think that I would need the support of a technical person to be able to use app.	43%	14%	43%
5. The various functions in this app are well integrated.	0%	29%	71%
6. I need to learn a lot of things before I can use this app	29%	7%	64%
TOTAL	13%	14%	73%

Trainers' evaluation. Results assessment

In addition to applying the new curriculum satisfactorily, teachers must assess whether the tool has reached a satisfactory level regarding de following criteria:

Criteria	Evaluation Percentage of responses		
	🙁	😐	🙂
The resource was useful for me as a Trainer/educator	**0%**	**0%**	**100%**
Promote ICT devices and applications ability in order to access and manage information and solve problems	**0%**	**0%**	**100%**
Inform young workers about vocational opportunities in construction industry professions environment;	**0%**	**0%**	**100%**
Participants are learning something new that will enhance their knowledge	**0%**	**100%**	**0%**
It gives participants an opportunity to apply it directly to their work environment	**0%**	**0%**	**100%**
There were critical issues during the session	**0%**	**0%**	**100%**
Was climate for learning attractive and stimulating	**0%**	**0%**	**100%**

Technical and technological assessment: sector and ICT experts

To have a final App properly supported by experts, the endorsement of technical experts is needed. To do so it is necessary to know first-hand the positive and improvable aspects of the APP. Therefore, project team have provided the application to experts in the field of rehabilitation (senior construction workers, architects, teachers, etc.) in order to know whether the tool fulfilled their technical expectations.

Also, to ensure that the final App fulfils all technological expectations, it has been tested by ICT experts in order to know its performance, usability and functionality.

In this regard, a focus group with experts in each country has been carried out to assess program strengths and weaknesses and needed improvements:

Experts' evaluation. Results assessment

STRENGTHS	WEAKNESSES
The choice of professional profile The app is a very interesting novelty Immediacy of the information Many educational implications There are several ways to get to the building elements. Flexibility The way the app is presented is appealing. The indication of the places visited helps in navigation. Transversal Technological platform.	The skills list lacks some details The themes are treated in a shallow way. The exemplary steps could be more.
IMPROVEMENTS FOR QUALITY	
Further expand the content Experiment with wider interventions Further development of the contents.	

Conclusions

During the evaluation process, feedback is generated by the participants and experts consulted. Receiving this feedback is important to allow instructional designers of the training programme to find out if learning objectives are met and how well the course has been received.

The results coming from this experimental action and evaluation have provided the information for the final adjustments to the training App, ensuring its quality and suitability to objectives and targeted groups.

Annexes

Signatures sheets of classroom testing (template)

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Classroom Experimentation

Venue			
Date			
Supervisor			
Trainer		Years of experience	

List of participant trainees:

Nº	NAME AND SURNAME	E-MAIL	SIGNATURE
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

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Questionnaire for trainees

1. SELF-ASSESSMENT QUESTIONNAIRE

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Questionnaire for trainees

SELF-ASSESSMENT QUESTIONNAIRE

Please evaluate your knowledge and skills with regard to the following works for antique buildings' rehabilitation, being 1 the less knowledge and 10 a proficiency level.

Inside each category, you can find a shot description of the knowledge/skills that it includes. You only have to score the global category.

Topic	Self-assessment Scale from 1 to 10									
	1	2	3	4	5	6	7	8	9	10
1. Stone cutting ▪ Selection of natural or artificial stones ▪ Application of techniques of foundation, anchoring and dowelling ▪ Cutting of stones with different techniques ▪ Preparation of the mortar ▪ Handling and placing of natural and artificial stones										
2. Brick walling ▪ Identification of different foundations and walls in the structure ▪ Preparation of bricks and mortar ▪ Implementation of the brickwork										
3. Shoring scaffolds ▪ Analysis of the characteristics of the wood ▪ Cutting of wood ▪ Assembly of scaffolds and ribs										
4. Structural lintels ▪ Identification of lintel pathology ▪ Structural analysis ▪ Repairing of existing lintels										
5. Arch and vault elements ▪ Cutting, shaping and assembling of steel reinforcement ▪ Building wooden shuttering or assembling prefabricated formwork										

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Topic	Self-assessment Scale from 1 to 10									
	1	2	3	4	5	6	7	8	9	10
▪ Preparation and casting of making concrete										
▪ Disarmament of reinforced concrete structures built										
6. Staircases										
▪ Cutting, shaping and assembling of steel reinforcement										
▪ Building wooden shuttering or assembling prefabricated formwork										
▪ Preparation and casting of making concrete										
▪ Disarmament of reinforced concrete structures built										
7. Gable structure										
▪ Distinction of traditional coverings										
▪ Identification of dysfunctions										
▪ Dismantling of the covering materials										
▪ Applying the execution sequence										
8. Roof covering										
▪ Distinction of traditional coverings										
▪ Identification of dysfunctions										
▪ Dismantling of the covering materials										
▪ Applying the execution sequence										
9. Roof finishing										
▪ Description of finishing executions										
▪ Dismantling of the finished elements of coverings										
▪ Identification of the different elements dysfunctions										
▪ Apply traditional techniques of execution										
10. Roof encounters										
▪ Identification of damages										
▪ Dismantling of the used materials										
▪ Application of the traditional execution techniques										
11. Guttering										
▪ Identification of pathologies										
▪ Carrying out clearing works										
▪ Reparation of guttering, downpipes and system components										
12. Sanitation installations										
▪ Identification of pathologies										
▪ Carrying out clearing works of deteriorated materials										
▪ Execution of encounters and anchors to other construction elements										
13. Roof plumbing										
▪ Identification of pathologies										
▪ Cleaning, revision and fixation control.										

Topic	Self-assessment Scale from 1 to 10									
	1	2	3	4	5	6	7	8	9	10
▪ Reparation of guttering, downpipes and system components										
14. Seams and joints										
▪ Identification of different diseases										
▪ Treatment of the grouts										
▪ Preparation of mortar										
▪ Putting right finishing touches										
15. Decorative masonry										
▪ Application of different techniques of cutting and ornamentation										
▪ Assessment of degradation and diagnosis										
▪ Dismantling of old elements										
▪ Removal, installation and fixing of elements.										
16. Other decorative finishing										
▪ Wood elements restoration										
▪ Metal elements restoration										
▪ Skylights restoration										
17. Decorative painting										
▪ Selection of the more suitable technique and materials										
▪ Analysis of the support to be restored										
▪ Preparation of the support										
▪ Application of different products and decorative finishes										
18. Decorative fittings in plaster										
▪ Preparation of the surface										
▪ Recovery and consolidation of the existing plasters and decorative elements										
▪ Implementation of the decorative fittings										

Thank you!

2. SATISFACTION QUESTIONNAIRE

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Questionnaire for trainees

Please complete the following evaluation for the training session you attended. Your feedback will help us to evaluate the effectiveness of this program and allow us for planning future programming and services we offer. Thank you

1 COURSE AIMS AND OBJECTIVES

Please indicate with an X your impressions of the items listed below

1=poor 2=fair 3=average 4=good 5=excellent

	1	2	3	4	5
Did the content meet your expectations?					
Did this program meet the stated objectives :					
1. Promote ICT devices and applications ability in order to access and manage information and solve problems					
2. Inform young workers about vocational opportunities in construction industry professions environment;					
What is your overall assessment of the event?					
Can you practically apply the course material to your future work situations?					
How will the course affect your ability to perform your job from now on?					
Do you consider your interest on rehabilitation of antique buildings has increased?					

2 ABOUT MOBILE APPLICATION TESTING

Please indicate with an X your impressions of the items listed below

1=strongly disagree 2=Disagree 3=neither agree nor disagree 4=Agree 5=strongly agree

	1	2	3	4	5
1. I think that I would like to use this app frequently					
2. I find the app unnecessarily complex.					
3. I think the app is easy to use.					
4. I think that I would need the support of a technical person to be able to use app.					
5. The various functions in this app are well integrated.					
6. I need to learn a lot of things before I can use this app					

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3 FINAL COMMENTS

Would you recommend this training to your colleagues/friends?   ☐ Yes   ☐ No ☐ Not sure

Would you like to take part in further courses in this topic?

_____

_____

_____

Further comments or suggestions

_____

_____

_____

The information in this section helps us knowing more about the people we reach with our programs.
This section is completely voluntary and anonymous.

What is your sex?   ☐ Female   ☐Male   what is your age? _____
What is your job?   _____

Please return this form to the organizer at the end of the course.

Thank you!

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Questionnaire for trainers

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Questionnaire for trainers

Please complete the following evaluation for the course you partook. Your feedback will help us evaluate the effectiveness of this program and allow us for planning future programming and services we offer. Thank you

1 ABOUT TRANING RESOURCE

Please indicate with an X your impressions of the items listed below

1=poor   2=fair   3=average   4=good   5=excellent

	1	2	3	4	5
The resource was useful for me as a Trainer/educator					
It meets the stated objectives of:					
1. Promote ICT devices and applications ability in order to access and manage information and solve problems					
2. Inform young workers about vocational opportunities in construction industry professions environment;					
Participants are learning something new that will enhance their knowledge					
It gives participants an opportunity to apply it directly to their work environment					
There were critical issues during the session					
Was climate for learning attractive and stimulating					

2 ABOUT FEATURES OF MOBILE APPLICATION

Strengths ☺	Weaknesses ☹	Suggestions

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Focus group script

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Focus group script for experts

Main objective of the focus group discussion is: to evaluate the contents of the training and the app

1 Introductions and information
  o Thank participant for coming,
  o Provide further copies of information sheets with contact details
  o Outline purpose of meeting, clarify objectives and timetable
  o Confirm confidentiality
  o Ask for consent to record using digital recorder and flip chart
  o Ground rules of group
	Setting group dynamics and rules

2 Background information o Introduce themselves	Setting the scene

3. Experience of the project
  o What do you think about this experience?
  o What drove the positive/negative reaction? If negative, how could it be rectified
	Gathering information about process

4 Explore the working process
  o What are your thoughts on the mobile application, about the accuracy of the tool and the adequacy of contents?
  o What could have been done to make it work more successfully?
  o What did you like, or not? What could be changed?
	Exploring the working process

5 What difference did it make Group discussion (impact on young people, wider community, worthwhile, do again, contributions acted on, examples of things achieved even if small)	Exploring perceived outcomes
6 Any questions…anything else?	
7 Conclusion/summary Sum up what you've heard, explain what will happen to information	Summing up and end session

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Project leader:

Fundación Laboral de la Construcción
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Partners:

Comité de Concertation et de Coordination de l'Apprentissage du Bâtiment et des Travaux Publics
FRANCE

Ente Nazionale per la Formazione e L´Addestramento Professionale Nell´Edilizia di Puglia
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