

# CRAFTSMANSHIP+

O1 A2

Study on Apprenticeship and ICT Based Learning Practices

Final Report



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## 1. INTRODUCTION

One of the main objectives of the Craftmanship+ Project is to create a Course on Innovation and Competitiveness in the Crafts and Semi-Industrial Activities, using a b-learning approach. The Course on Innovation and Competitiveness in the Crafts and Semi-Industrial Activities will be an innovative learning programme targeted at:

- Young adults looking to learn a craft/semi-industrial process and become entrepreneurs and
- “Makers” (generically the persons that develop a craft or a semi-industrial activity) wanting to update and take their businesses to a new level.

With this end, the Intellectual Output 1 – Activity 1 aims to offer a comprehensive understanding on the ICT based learning practices applied to traditional apprenticeship learning system by:

- Identifying apprenticeship approaches in use.
- Identifying well succeeded experiences using ICT based learning methods.
- Identifying the structure of training offer for Crafts, analyzing the experiences of individuals involved in designing, developing and implementing an alternative blended model of apprenticeship technical training, combining traditional face-to-face learning with online independent learning modules and virtual classroom learning.

The specific objectives to be achieved by this output are:

- Derive learning lessons from well succeeded experiences of ICT based learning practices applied to crafts and semi-industrial.
- Disseminate ICT practices to traditional apprenticeship learning systems.

This document present the results of the desk research for the identification of well succeeded ICT based learning practices in the craft sector. It starts with a short presentation of general advantages of ICT applications, both as a macro-economical and a micro-economical point of view. Following this section, it is presented the ideas that have been picked up in each country and can be interested to be transferred. Then, specific requirements to take into consideration before implementing an ICT application. Finally, some conclusions are recommendations derived from the main findings of the study are presented.



## 2. GENERALITY AND ADVANTAGES

### → AS A MACRO-ECONOMICAL POINT OF VIEW

The digital transformation contributes to overcome the current economy and the ecological crisis

It can also contribute to upgrade educational and vocational training systems, while developing the widespread use of innovative technologies

ICT widespreading is seen as a catalyser of innovation in education, conducting to new teaching practises, new models of organisation, new products and tools to support quality teaching

Digital applications aim at developing and supporting new interdisciplinary and competence-oriented approaches

Blended modalities of e-learning offer different opportunities for in-service training of teachers

It aims to support the communication between trainers and trainees

New kind of didactics which puts people in network, developing connections, avoiding cultural isolation

The general aims of these courses are to provide confidence in one's abilities, to help students organising their time depending on their professional habits and responsibilities ad better perform

### → AS A MICRO-ECONOMICAL POINT OF VIEW

Digital technologies and new media offer services and visibility to the traditional artisan class that create physical design and craftsmanship (for exemple prototyping platforms)

The biggest challenge consists of connecting famous experts / strong Masters craftsmen with digital natives, stimulating the dissemination of technical secrets through a virtual environment

The main difference between general e-learning systems and applications dedicated to crafts sector is that beyond extending economic and educational skills, the learner also conducts self-realization activities



### 3. IDEAS INTERESTING TO BE TRANSFERRED

Some applications (as Oilproject for exemple) are defined as totally free e-learning communities, where everyone can exchange on different subjects, upload their own lessons (audios, videos). The counterpart is that the authors are obliged to transfer their property rights on contents.

To be useful and relevant for craft sector, applications must provide support to enhance their technologies, but also to increase their competitiveness and propose partners at national / international levels (Enea for exemple)

To get an interest, courses must be provided by experts, for a wide range of courses, from basic backgrounds to certification courses, passing by historical topics and introduction to materials and components (Craft University) and providing virtual exchanges, questions, courses documentation, step-by-step instructions, collaborations between teachers, cloud and wiki

A neutral organisation (as European Institute of Design) can facilitate the link between digital experts and crafts experts to build the final platform (ex : Samsung Maestros Academy)

Open Educational Resources can be based on learning materials and teaching experiences which are integrated in a teaching social network through a system of social labeling, feedback from users and learning communities (Educalab, Sp)

Implementing a formal recogniton (as Certification ICT in Spain or accreditation in Greece or global evaluation in France for exemple) has a measurable positive impact for the structure

Even in a distance course, several teachers and experts must guide the learning path of students in a individualized way (Aidima, sp)

Learning procedure has to be well structured and completed with concrete activitiy (as visit to Athens for exemple for Akto, Greece and CraftArtEdu, Portugal).

Corrections on running projects are important and even compulsory. Through the use of new technologies (via a special application), group calls may be arranged, where students work in team. Each project has to be analysed to complete the work (Akto, Greece).

A precise learning methodology has to be implemented gathering project, organisation, outcomes measurements, communication issues (Akto, greece)

Projects can reach an international level and upscale the concept of Digital Education and Practice (DPE) while cooperating with enterprises that either produce business software or use it in their day to day management and marketing functions (Kapodistrian univ, Greece).

In addition to online classrooms, services may be offered to clients through the platform, notably the possibility to buy materials (to be purchased at competitive prices) or also a space to share photos (Craftsy, Portugal).



To compensate not sufficient very specific ICT skills from teachers, methodologies as inverted classroom can also be proposed (Fr).

Intellectual property rights must be carefully taken into account during the design and the implementation of the platform (paigiarism – Fr).

## 5. REQUIREMENTS

### → Technical requirements

Multimedia equipment (smartphone, tablet, laptops, smart TV) (a large screen is recommended for convenience)

Connection to internet

Networks and services (guideline for pedagogical orientation)

Advanced technology System (as TEL for exemple, Technology Enhanced Learning and CMS – Contents Management Systems)

Summarized as the technology BYOT (Bring Your Own Technology)

### → Human requirements

The efficiency depends on the willingness and the motivation of teachers

Using online learning environment means that teachers must be familiarized with ICT to integrate the new modality of e-learning in their daily teaching practices

### → Regulatory requirements

In some countries (as Spain for exemple), the National Employment Public Service (SEPE) must approve the modality of virtual training, through an accreditation

## 6. SYNTHESIS AND CURRENT STATE OF ART

### → Synthesis

The content of each thematic unit available online is related to the key points of the theory and is completed with the following:

- examples
- solved exercises
- self-assessment exercises
- additional bibliography



This presentation mode of modules aims at the consolidation of the theory in a more constructive way compared to the “traditional” way. Meanwhile, the course structure is designed so that the educational material:

- guides the learner in his study,
- enhances the interaction of the learner with the learning material,
- explains complex points and concepts,
- evaluates and updates the student on his progress,
- lays out the theoretical knowledge using practical applications

The programme is conducted solely via the internet, offering the trainee “autonomy”, that is the possibility to study regardless of limiting factors, such as the requirement of physical presence in a particular place and time. The learner, after completing the study of each module, is invited to submit electronically the corresponding self-assessment test. The tests include questions like matching the correct answers, multiple choice questions, true / false.

Finally, the educational material is also provided in electronic form (e-book), to facilitate the students in case they prefer the print version. In each module the student is asked to complete and submit electronically the corresponding test, until the end of the programme.

➔ CURRENT STATE OF ART

- Experimentations still run to easily monitor students' activities by software and other tracking applications
- Some projects are still engaged in transnational programs to foster the recovery of degraded urban landscapes
- Social media have still to be developed as a strong way of communication

## CONCLUSION

The informal learning context can properly be considered as an innovation to complete a formal apprenticeship in a specific craft sector, to help students learning and manufacturing their own products, services and tools with the support of the online platform.

## CATALOGUE

- PuntoEdu (It) is a platform available for school teacher which consists of a tutor to attend several teacher training courses, based on an active learning approach (learning by doing)
- Craft University (It) : online education program to learn crafting techniques and skills
- Samsung Maestros Academy (It): online platform to learn how to create startup or company starting from the experience of some master craftsmen
- The National Technological Observatory was created in 2010 in Spain to observe computer technology (hardware and software)
- E-learning platform provided by Fundacion Tripartita (Spain) : m-learning with use of smartphone offered with the professional family
- Burgos Schhol of Arts and Design (Spain) : one of the few center in Spain to offer courses / learning resources in Art and Design
- Aidima (Spain) : virtual classroom and methodologies to be overcome in order to move forward and obtain the professional certification
- Akto (Greece) : beyond the post-graduate and undergraduate programmes of studies of the largest group in Art, Design and Media, Akto offers flexible Open Learning and Distance Learning programmes
- VET Center of national University of Athens : distance education courses that link theoretical and academic knowledge to the practical and applied skills required in professional fields (Greece)
- Craftsy (Portugal) : high quality approach to online learning
- CraftsArtEdu : online craft and fine art e-learning community
- CFMDA : bakery training center with a specific application developed by teachers themselves to complete the theoretical course
- MOOC VITRA : stain glass on-line training

